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ABSTRACT

This research report of the North Carolina Advancement School includes a description of the selection of students and the instructional program; a statistical analysis of the students; an evaluation of the counseling and instructional programs; a discussion of research in progress; and recommendations. The School's purpose is to carry on experimentation and research on the causes and possible remedies of underachievement as well as to help individual students realize their potential. For the Spring, 1968, semester, 108 eighth-grade boys, representing all areas of the state, constituted the resident student body; thirty-six boys from the local area were admitted as day students. The students were given individualized and exploratory instruction working closely with a counselor. In summary, the results of this study tend to indicate that personality characteristics are highly correlated with achievement. It is recommended that further research be done in this area and that diagnostic methods continue to be explored. For related reports see UD 011 076 and 011 078-081. [Because of the size of the print, the tables on pages 31-33 will not be easily readable in hard copy.] (Author/JW)

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A RESEARCH REPORT OF
THE NORTH CAROLINA ADVANCEMENT SCHOOL:
SPRING SEMESTER, 1968

Submitted to the Board of Governors and the
North Carolina State Board of Education

Winston-Salem, North Carolina

August, 1968

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TABLE OF CONTENTS

CHAPTER PAGE

I. INTRODUCTION 1

Purposes of the North Carolina Advancement School 2

The Underachiever Defined 3

The Selection of Students 4

Instructional Program of the North Carolina Advancement School 5

The Humanities Program 8

The Learning Center 8

The Exploratory Curriculum 9

Organization of This Report 11

II. A STATISTICAL ANALYSIS OF THE NORTH CAROLINA ADVANCEMENT SCHOOL PROGRAM AND ITS STUDENTS: JANUARY 3, 1968 - MAY 31, 1968 13

Research Design for the Evaluation of the North Carolina Advancement School Program . . . 14

Groups Used in the Study 14

Collection of the Data 15

Analysis of the Data 17

The Results of the Analyses 18

Conclusions 24

CHAPTER PAGE

Research Design Comparing the Advancement School Residential and Advancement School Day Students: Further Assessments 24
Collection of the Data 25
Analysis of Data 26
Results 26
Summary 28
Further Analysis of Data 28
Relationships Among Achievement, Aptitude, Personality, and Social Factors 30
The Study Group 30
The Collection of Data 30
Analysis of the Data 38
Results of the Analysis 38
A Profile of Students Classified as Underachievers in the North Carolina Advancement School 47
III. AN EVALUATION OF THE COUNSELING AND INSTRUCTIONAL PROGRAMS OF THE NORTH CAROLINA ADVANCEMENT SCHOOL 53
The Counseling Program 53
Evaluation of the Instructional Program 61
The Humanities Block 62
The Reading Program 63

CHAPTER PAGE

Mathematics Program 65
The Science Program 66
The Art Program 67
The Industrial Arts Program 68
Music Program 68
The Physical Education Program 69
The Recreation Program 71
Parent and Teacher Visitations 71
Meetings for Parents of Non-Resident Students 74
Public School Visitations 76
IV. RESEARCH IN PROGRESS AND NEEDED RESEARCH 78
Research in Progress 79
A Content Analysis of Case Studies 79
An Analysis of Physical Characteristics of the Underachiever 80
An Analysis of Motor Skill Abilities of Underachievers 81
The Development of Leadership Characteristics in Selected Underachievers 81
An Analysis of the Effectiveness of the 1968 Summer School Program 82

CHAPTER PAGE

An Analysis of Change in Student Achievement and Student Self-Concept as Related to an Individualized Approach to Science Instruction 83

An Analysis of the Development of Self-Concept Through an Individualized Approach to Industrial Arts 84

Needed Research 84

An In-Depth Follow-Up Study of the Boys Who Attended the Advancement School After They Returned to the Home Setting 84

A Depth Study on the Personality Characteristics of Parents 85

A Depth Study of the Environment of the Student Attending the Advancement School . . 85

A Study of the Effectiveness of the Counseling Program at the North Carolina Advancement School 85

An Analysis of Individualized Instruction and Other Instructional Techniques 85

Comparative Studies Evaluating Differences Among Age Groups 86

The Development and Validation of Diagnostic Instruments 86

CHAPTER PAGE

A Continual and More Thorough Survey of the Literature Related to the Phenomenon of Underachievement 86

V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS 88

Summary 88

Design of the Study 90

Conclusions 92

A Comparison of the Three Groups of Students On Achievement and Aptitude 92

An Analysis of Change In Self-Concept of the Residential Students 93

Correlations Between Achievement Measures and Other Variables for Students Attending the Advancement School 93

Correlations Between Study Methods and Other Variables 96

Correlations Between Aptitude and Other Variables 97

A Profile of the North Carolina Advancement School Students 99

Recommendations 100

Footnotes 103

Bibliography 104

Appendix 105

CHAPTER 1

INTRODUCTION

During the 1967 legislative year, the North Carolina Legislature appropriated $1 million for the North Carolina Advancement School for the 1967-1969 biennium to conduct experimentation and research into the possible causes and remedies of underachievement. Subsequently, a Board of Governors was appointed and charged with the responsibility of appointing a director and assisting him and his staff in designing and implementing a program.

The major purpose of the Advancement School was to carry on experimentation and research into the causes and possible remedies of underachievement. On January 3, 1968, the doors of the Advancement School were opened to 108 eighth-grade boys representing all areas of the state of North Carolina. These youngsters constituted the resident student body of the Advancement School. Approximately one month later, thirty-six underachieving boys from Winston-Salem/Forsyth County school system were admitted as day students.

I. PURPOSES OF THE NORTH CAROLINA ADVANCEMENT SCHOOL

More specifically, the school concentrated its emphasis on achieving the following objectives:

1. To offer a residential and instructional program for selected students which would help them break through barriers to learning and move toward the realization of their own potential.
2. To carry out carefully controlled experimental projects that were designed to identify the major factors contributing to underachievement.
3. To experiment with many different techniques and media that might be helpful in overcoming barriers to learning and to demonstrate their effective usage.
4. To determine any characteristics of a physical, intellectual, emotional, or sociological nature that might be associated with the underachiever.
5. To compile and interpret the findings of this research and to make it available to all the schools and other related agencies of the state for their use in improving their educational programs.
6. To create positive attitudes toward learning among students and to help them establish some degree of understanding about themselves and the world in which they live. It was anticipated that this approach

would help students to see learning as having meaning and purpose for them and to see themselves more favorably as a learner.

7. To help these students to make necessary adjustments that would enable them to return to their regular classrooms with some degree of competence and success.
8. To build the necessary academic skills that would enable students to succeed when they return to the classroom.
9. To share with colleges, universities, and other educational agencies the programs developed at the Advancement School. In addition, it was anticipated that staff and facilities of the Advancement School would be utilized for teacher training or in-service education programs in a cooperative effort with the colleges, universities, and school systems.

II. THE UNDERACHIEVER DEFINED

For the purpose of the program at the North Carolina Advancement School, the underachiever was defined as any student with average or above average ability who was not achieving at his expected level. A student with average or above average ability as judged by his standardized test scores, academic record, and teacher observations would be considered an underachiever if his achievement level was at least one or more years below his expected achievement.

A selection committee was established which consisted of the director, the assistant director, the coordinator of guidance and counseling, and selected staff members of the North Carolina Advancement School. The purpose of this selection committee was to screen all applications received from the schools of the state and make final judgments concerning who would be invited to the Advancement School for participation in this program. In addition, the selection committee reserved the right to request additional information in order to make more accurate decisions concerning borderline cases.

III. THE SELECTION OF STUDENTS

Selection of students was limited to eighth-grade boys for the academic semester beginning in January, 1968, and continuing through May, 1968. The following criteria were used in the selection of the students:

1. Students were selected who were determined to be underachievers by standardized tests, academic record, teacher observation, and personal interview when needed.

2. Priority was given to students with the greatest discrepancy between their estimated ability and their measured achievement.
3. Selection was limited to students with average or above average ability and to students without severe behavioral problems.
4. Selection was limited to students in good health who had no physical handicaps which would limit their activities in the program or demand specialized attention from the staff.
5. Priority was given to those students whose characteristics lended themselves best to the particular research design being implemented at the North Carolina Advancement School.

IV. INSTRUCTIONAL PROGRAM OF THE NORTH CAROLINA ADVANCEMENT SCHOOL

The instructional program was designed to implement the above-named objectives. It was designed with the belief that the individual who develops his potential to the fullest will be of more value to himself as well as to society. Many deterrents, both real and perceived, prevent the underachiever from realizing his full potential. The interaction between the underachiever and environmental pressures creates barriers to learning which may become more and more acute with passage of time. The instructional program at the North Carolina Advancement School attempted to remove the underachiever from these environmental factors and to surround him with an atmosphere free from pressure and, therefore, more conducive to learning.

Recent research in the area of underachievement tends to indicate that there are three major institutions from which pressures emanate. These institutions are the home, the peer group, and the school. With the entrance of the underachievers to the North Carolina Advancement School, these three sources of pressure were removed and replaced by a more carefully controlled environment.

The students resided on campus and became members of a small group or house of eighteen boys with similar learning difficulties. As a group, the boys worked closely with a counselor who attempted to remove obstacles preventing learning so that academic skills and concepts might be taught. Emphasis was afforded learning experiences designed to improve individual self-concept through the use of group problem-solving techniques. Obviously, this necessitated changes in attitudes toward learning and toward the group in general.

More specifically, the objectives of the instructional program were the following:

1. To provide an atmosphere free from pressures in which the underachiever was more likely to begin expressing himself.
2. To provide an atmosphere in which the underachiever was led to evaluate his value system, his abilities, his attitudes, and his interests.
3. To create an atmosphere in which the underachiever was led to see ways of relating these values, abilities, attitudes, and interests to society in a more productive way, and thus improve his self-concept as a learner.
4. To provide for the individualization of instruction and skill-development in such areas as reading, communications skills, mathematics, and science.
5. To provide underachievers with opportunities to pursue special interests and abilities in depth according to individual needs.
6. To create a learning situation in which constant feed-back was gained for diagnostic and prescriptive purposes.

In terms of organizational format, the instructional program was viewed as having three concurrent facets: a humanities program, a learning center, and an exploratory curriculum.

The Humanities Program. The humanities program emphasized the analysis of values, attitudes, beliefs, interests, and needs, in order that the underachiever would relate more positively to himself, to his peers, and to society around him. It was based on the belief that education should be characterized by humanizing influences which in turn effect positive changes in behavior.

The program began with a two and one-half hour to three-hour block of time stressing language arts and social studies permeated by a theme related to communication. It was to be done with a diagnostic unit led by the counselor. Through this unit the counselor helped members of his group begin to identify their strengths, needs, interests, and abilities and to begin seeking ways to overcome the problems that faced them. Eventually, the diagnostic unit involved students in communications and in some understanding of their role in society. As they discovered their needs and began to seek help in meeting them, the counselor directed them to other staff members who were specialists in the different areas of the curriculum. The humanities program thus revolved around broad thematic ideas and concepts aimed at securing maximum involvement of the pupils in the learning process.

The Learning Center. As the underachiever began to seek help in meeting his needs, an individualized program in skill development was prescribed for him. Thus the underachiever was sent to the learning center where an individual program was designed to meet his specific needs. For example, through the diagnostic approach as ordered by the humanities program, the underachiever began to realize that he was an underachiever because he had never learned to read with proficiency. The counselor, together with a specialist on the staff, then directed this youngster to the reading center, where an individualized reading program was outlined for him. The same approach held true for other skill-development areas of the curriculum, such as mathematics, science, problem-solving, and the like.

The Exploratory Curriculum. In addition to the above, the underachiever began to identify his special interests and abilities. For example, if one youngster had a particular talent in art, the counselor and other specialists on the staff would direct him to the art teacher, where an individualized program in art would be outlined for him. The same would hold true for other areas, such as industrial arts, music, physical education, hobbies, science, mathematics, etc.

The three areas of the curriculum as described above overlapped greatly and depended upon one another for successful implementation of the program for individual students. Since the instructional program required maximum flexibility on the part of the staff of the Advancement School, frequent staff meetings were held to assess the effectiveness of the program and to discuss changes that needed to take place in order to progress within the program.

Just as the instructional program was based on individual needs, so the length of time a student remained in a program also was an individual matter. It was felt that a student should remain with a program as long as he was profiting from his stay and until it was felt that he was making the necessary attitudinal change and acquiring the basic skills which would enable him to make adjustments to the regular classroom. It was not anticipated that these changes and developments could be accomplished in short periods. Therefore, a great majority of the students remained in the program for the full semester. For the purposes of the research design, the longer period of a full semester for most students was found to be desirable.

Periodic written reports, which described the student's accomplishments, special talents, and needed remedial help, were sent to the home and school. Suggestions from home and school as to how the Advancement School could best help this specific individual were solicited. The effectiveness of the program for an individual child greatly depended on this type of communication. In addition, case studies on each child were written by counselors with the help of subject matter specialists on the staff. Each case study included an analysis of academic achievement, social and emotional adjustment, attitudinal changes, and behavioral problems evidenced here at the school. Each case study also included specific recommendations as to what should be done with the youngster when he returned to his home setting. These case studies were sent to parents or guardians of the students as well as to the home school.

V. ORGANIZATION OF THIS REPORT

The organization of this report involved the following:

1. An introduction describing the purposes of the program and a description of the instructional program.
2. A design of appropriate research procedures for the collection of data.
3. The analysis and presentation of the data.
4. An evaluation of the instructional and counseling programs.
5. A description of educational experiences provided for parents and public school officials.
6. A description of research in progress and needed research.
7. A presentation of a summary and recommendations.

Chapter II explained the design of the research study, including collection of data, analysis of data, and results derived from the analysis of the data. Chapter III involved an evaluation of the instructional and counseling programs. This evaluation included academic areas as well as opportunities provided for parents in aiding them in understanding their youngster. Chapter IV outlined research in progress and needed research. This included an analysis of case studies, research in the area of science, and research in the area of reading, dissertations in progress, and a special study on the development of leadership qualities. Chapter V incorporated a summary of the study together with recommendations stemming from the study. A bibliography was included, as well as an appendix containing tables and special materials used in this study.

CHAPTER II

A STATISTICAL ANALYSIS OF THE NORTH CAROLINA ADVANCEMENT SCHOOL PROGRAM AND ITS STUDENTS: JANUARY 3, 1968 - MAY 31, 1968

The research strategy for the initial stages of the operation of the North Carolina Advancement School emphasized three basic approaches:

1. The systematic collection of data to provide an objective comparison of the effects of the program of the North Carolina Advancement School with the regular program received by similar students in the public schools of North Carolina. These data were collected to provide a basis for evaluating the overall program of the North Carolina Advancement School.
2. The systematic collection and analysis of data relative to the factors which contribute to the behavioral syndrome labeled underachievement.
3. The collection of data to establish a profile of descriptive characteristics of eighth-grade boys labeled as underachievers.

I. RESEARCH DESIGN FOR THE EVALUATION OF THE NORTH CAROLINA ADVANCEMENT SCHOOL PROGRAM

The design for this part of the research program was motivated by a desire to answer two basic questions.

1. What effect does the North Carolina Advancement School program have on the behavior of students labeled as underachievers when compared with the regular program in public schools of North Carolina?
2. What effect does a residential as compared to a non-residential school environment have on the behavior of students labeled as underachievers?

The basic method used for the collection of data was a pre-test post-test control group design.

Groups Used in the Study. Three groups of students with similar characteristics were used in this study. All students were eighth-grade boys who met the requirements established by the North Carolina Advancement School for admission to the program. All students used in this study submitted formal applications for admission to the program. Eligible students who applied for the program were assigned to one of three groups--the Advancement School residential group, the Advancement School day group, and the non-participating control group. From the eligible applicants, equal numbers of students were randomly selected as Advancement School residential students and non-participating control students. This procedure was used to assure comparability between these two groups. The Advancement School day students were selected from applicants from the Winston-Salem/Forsyth County school system who met the same qualifications as the Advancement School residential students. Table 1 contains descriptive information concerning these three groups of students.

Collection of the Data. In order to compare the three groups of students on achievement, aptitude, and study methods, the following tests were given to all three groups, both pre-test and post-test:

1. The Stanford Achievement Test.[1] Four sub-tests of this achievement battery were used; namely, Paragraph Meaning, Language, Arithmetic Computation, and Arithmetic Application.
2. Aptitude as assessed by the Lorge-Thorndike Intelligence Test.[2] Both the Verbal and Non-Verbal batteries of this test were administered.
3. Study Methods as assessed by the California Study Methods Survey.[3] The sub-tests of the study methods survey were Attitude Toward School, Mechanics of Study, and Planning and System.

These tests were administered to the North Carolina Advancement School students, both residential and day, during

Table 1. Residential, Day, and Control Students of the North Carolina Advancement School, February 1, 1968: Descriptive Data.

	Residential	Day	Control
Number of Students	108	37	92
Race:			
Negro	35	13	40
White	73	24	52
Mean Age	14-0	14-2	14-0
Regions Represented:*			
1	44	--	31
2	48	37	48
3	16	--	13
Number of Counties Represented	40	1	26
Number of School Systems Represented	49	1	31
Number of Schools Represented	71	14	57
Type Schools Represented:			
Grades 7 - 9	26	14	15
Grades 1 - 8	15	--	18
Grades 1 - 12	11	--	12
Other	19	--	12
Size of Cities Represented:			
Over 60,000	29	31	16
10,000 - 60,000	34	0	25
Under 10,000	45	6	51

*The eight educational districts of the state are divided as follows: 1 - Eastern North Carolina (Educational Districts 1, 2, and 3); 2 - Central North Carolina (Educational Districts 4, 5, and 6); and 3 - Western North Carolina (Educational Districts 7, 8).

the first two weeks in residence at the school, and again during the last week of the semester. The same tests were administered to the non-participating control students in their home schools. To insure comparable testing situations, an examiner's manual was prepared for the counselors of the non-participating control group students. Alternate forms of the achievement and aptitude tests were used for the pre- and post-tests. The same form of the study methods survey was used in both pre- and post-situations.

Analysis of the Data. These data were analyzed by an analysis of covariance.[4] The independent variable was the treatment group; that is, the Advancement School residential, the Advancement School day, and the non-participating control. The dependent variables were the final performances on the achievement, aptitude, and study methods tests. The number of covariates which was used to adjust the final performance for initial differences among the students on the pre-test assessments varied according to the dependent variable being analyzed. The number of covariates for each of the achievement analyses was three--the achievement pre-test, verbal aptitude, and non-verbal aptitude assessed on the occasion of the pre-tests. The number of covariates on the aptitude analysis was two--verbal and non-verbal aptitude assessed on the occasion of the pre-test. The number of covariates in each of the study methods analyzed was one--the pre-test score on that particular sub-test.

The Results of the Analyses. Data were available for 101 Advancement School residential students, 34 Advancement School day students, and 67 non-participating control students. Table 2 presents the means on pre and post tests for each of the three groups of students.

It should be noted that the means, both pre and post for Paragraph Meaning, Language, Arithmetic Computation, and Arithmetic Application have been reported as grade equivalents. The means for verbal and non-verbal aptitude have been reported as intelligence quotients. The means for the total study methods and the three sub-tests, both pre and post, have been reported as percentiles.

The data as presented in Table 2 were subjected to an analysis of covariance to assess significant differences among the three groups on each of the post tests. An F ratio significant to the 0.05 level was considered to indicate significant differences among the three groups. The analyses yielded the following results:

1. A comparison of the three groups on the Paragraph Meaning score indicated that there was no difference among the groups. An F ratio of 0.08 with 2 and 193

Table 2. Means for Pre-test and Post-test Assessments on Advancement School Residential, Advancement School Day, and Non-Participating Control Students.

Scale	Group	Pre $\bar{X}$	Post $\bar{X}$
Paragraph Meaning	Residential	6.3	6.4
	Day	6.3	6.4
	Control	6.2	6.3
Language	Residential	6.3	6.0
	Day	5.1	5.4
	Control	6.2	6.2
Arithmetic Computation	Residential	5.4	5.6
	Day	5.4	5.4
	Control	5.6	5.8
Arithmetic Application	Residential	6.7	6.7
	Day	7.2	6.7
	Control	6.7	7.2
Verbal IQ	Residential	97	98
	Day	97	95
	Control	95	93
Non-Verbal IQ	Residential	96	104
	Day	98	101
	Control	96	99
Study Methods (Total)	Residential	10	10
	Day	5	5
	Control	10	20
Study Methods (Attitude)	Residential	10	20
	Day	10	10
	Control	20	30
Study Methods (Mechanics)	Residential	10	10
	Day	10	5
	Control	10	10
Study Methods (Planning)	Residential	30	30
	Day	20	20
	Control	30	40

Residential Group N = 101
Day Group N = 34
Control Group N = 67

degrees of freedom indicated that the mean scores for the three groups on the post test were virtually identical.

2. A comparison of the three groups on the Language scores yielded an F ratio of 3.42 which was significant at the .04 level of confidence. A comparison of the means as represented in Table 2 revealed that the difference could be attributed to the lower scores of the Advancement School day students. There was no difference between the Advancement School residential group and the non-participating control group scored significantly higher on the post test than the Advancement School day students. The covariates in this analysis were pre-test scores on the Language test, Lorge-Thorndike Verbal and Lorge-Thorndike Non-Verbal tests.
3. A comparison of the three groups on the Arithmetic Computation test yielded an F ratio of 2.31, found to be non-significant at the .05 level of confidence. It should be noted that this ratio was significant at the .10 level. This difference, although considered to be non-significant under the rules of interpretation previously established, was attributed to the lower scores of the Advancement School day students. In other words,

the Advancement School residential students and non-participating control students tended to do better on the post test of the Arithmetic Computation than did the day students. The covariates in this analysis were pre-test scores on the Arithmetic Computation test, Lorge-Thorndike Verbal, and Lorge-Thorndike Non-Verbal tests.

4. There were no differences among the three groups on the post-test scores of the Arithmetic Applications test when analyzed by the covariance technique. This technique yielded an F ratio of 1.99 with 2 and 193 degrees of freedom. The covariates in this analysis were pre-test scores on the Arithmetic Applications test, Lorge-Thorndike Verbal, and Lorge-Thorndike Non-Verbal tests.

5. In comparing the post-test scores for the Lorge-Thorndike Verbal test, a significant difference among the three groups existed in favor of the Advancement School residential group. An F ratio of 3.25 with degrees of freedom of 2 and 195 was significant at the .04 level. An investigation of Table 2 revealed that this difference was attributable to the high scores on the Verbal test made by the Advancement School residential group. This may be interpreted to mean that the

Advancement School residential group did significantly better on the Lorge-Thorndike Verbal test on the occasion of the post test than did either the day group or the non-participating control group. The covariate in this analysis was the pre-test scores on the Lorge-Thorndike Verbal test.

6. The covariate analysis of the Lorge-Thorndike Non-Verbal test yielded no significant differences. An F ratio of 1.37 was found to be non-significant. The covariate in this analysis was the pre-test scores on the Lorge-Thorndike Non-Verbal test.
7. A significant difference among the three groups on the study methods total score was revealed. An F ratio of 4.33 with degrees of freedom of 2 and 194 was found to be significant at the .01 level. Reference to Table 2 revealed that the non-participating control students and the Advancement School residential students tended to do better than the Advancement School day students on this measure. The covariates in this analysis were the pre-test scores on the study methods total and the Lorge-Thorndike total.
8. An analysis of the scores on the Study Methods-Attitudes Toward School revealed a highly significant difference among the three groups. An F ratio of 5.39

with degrees of freedom of 2 and 194 was found to be significant at the .005 level. Again, this difference can be attributed to the excessively low scores of the Advancement School day students on this test, indicating that both the Advancement School residential students and the non-participating control students tended to do much better on this measure than the day students. The covariates in this analysis were pre-test scores on the Study Methods-Attitude and the Lorge-Thorndike total.

9. An analysis of the Study Methods--Mechanics of Study among the three groups revealed no significant difference at the .05 level. However, it should be noted on Table 2 that the Advancement School day group tended to score lower on the post test than did the Advancement School residential group or the non-participating control group. The covariate in this analysis was the pre-test score on the Study Methods-Mechanics of Study.

10. The analysis of covariance revealed a significant difference among the three groups on the post-test scores on the Study Methods - Planning and System. An F ratio of 3.60 with degrees of freedom of 2 and 195 yielded results significant at the .03 level. An investigation of Table 2 revealed that the difference was due to the high scores by the control group. In

other words, the control group tended to do better than either the residential or day groups. The covariates in this analysis were the pre-test scores on the Study Methods - Planning and System.

Conclusions. In terms of growth in achievement, the semester's experience at the Advancement School for the residential students compared favorably with the growth experienced by the control group in the home setting. The residential students did, however, obtain significant gains over the control group in scores on Verbal IQ. The above conclusions do not hold, however, for the Advancement School day students. The day students invariably tended to fall behind both the control group and the residential group on these assessments.

II. RESEARCH DESIGN COMPARING THE ADVANCEMENT SCHOOL RESIDENTIAL AND ADVANCEMENT SCHOOL DAY STUDENTS: FURTHER ASSESSMENTS

In addition to the data collected on the residential group, the day group, and the non-participating control group, additional data were collected on both the residential and the day groups in order to make further comparisons between the residential situation and the non-residential situation. The assessments were made on the pre-test post-test design basis.

Testing was accomplished during the first two weeks of school and during the last week of school.

Collection of the Data. The collection of the data for this analysis consisted of administering two sets of self-concept measures. One set of the self-concept assessments consisted of a Semantic Differential with eleven scales.[5] Each of the eleven scales was selected on the basis of its having previously been shown to be an evaluative type scale. Students were asked to rate themselves on the same scales from four different perspectives--Me at School, Me at Home, Me at Play, and Me as I Would Like To Be. In addition, they were asked to rate three other school-related concepts on the same scales--Teachers, Rules, and the North Carolina Advancement School. For each of the seven concepts rated by the student--four related to self and three related to other aspects of school--a single score was obtained related to the degree of positive or negative evaluation he attributed to the concept being rated. A high score indicated a more positive evaluation than a low score.

The second set of self-concept scales was the Intellectual Achievement Responsibility (IAR) Scales.[6] These scales are designed to assess the degree to which children believe that their successes and failures are the results of their own efforts as opposed to being caused by forces external and uncontrolled by the child. The scales yield three scores. The positive scale indicates the degree to which the child feels he is responsible for his achievement successes. The negative score indicates the degree to which the child feels he is responsible for his achievement failures. The total score indicates the degree to which he feels responsible for his achievement regardless of whether the achievement is viewed as being a success or failure. In each case, the higher the score, the more the responsibility the individual feels for his achievements.

Analysis of Data. The statistical analysis used in this aspect of the research was analysis of covariance. The dependent variable in each case was the post-test score. The covariate in each case was the score on the pre-test for the same variable used as the dependent variable.

Results. The means and standard deviations for each of the Semantic Differential self-concept evaluation assessments and the evaluation assessments of other school-related concepts and the three scores on the IAR scales may be observed in Table 3. Both pre-test and post-test means and standard deviations are presented.

A quick survey of these means clearly indicates that there were no differences on the post-test between the Advancement School residential and Advancement School day students. The

Table 3. Pre-test and Post-test Means and Standard Deviations of Residential and Day Students on the Intellectual Achievement Responsibility Scales and the Semantic Differential Scales--Evaluation Dimension.

Scale	Group	Pre X	Pre SD	Post $\bar{X}$	Post SD
IAR-P	Residential	11.90	2.96	12.79	2.80
	Day	12.21	2.94	12.85	2.98
IAR-N	Residential	11.33	2.61	11.99	2.19
	Day	11.09	3.02	12.21	2.25
IAR-T	Residential	23.23	4.87	24.79	3.88
	Day	23.29	5.38	25.06	4.53
Me at School[a]	Residential	39.68	8.13	39.04	7.67
	Day	35.44	12.73	38.38	6.50
Me at Home[a]	Residential	42.16	10.29	43.56	7.87
	Day	36.74	14.09	40.38	8.26
Me at Play[a]	Residential	45.34	8.37	43.12	8.10
	Day	39.21	14.83	40.42	9.00
Teachers[a]	Residential	42.80	10.37	36.39	11.08
	Day	37.21	13.92	36.53	7.86
Rules[a]	Residential	40.63	10.83	37.85	10.43
	Day	32.97	12.86	36.68	7.52
Ideal Me[a]	Residential	50.92	7.92	49.25	9.26
	Day	45.94	15.98	48.68	10.89
NCAS[a]	Residential	43.23	10.74	40.01	12.40
	Day	42.12	15.47	42.27	11.65

Note: Residential N = 94; Day N = 34.
IAR-P = Intellectual Achievement Responsibility Positive Scale
IAR-N = Intellectual Achievement Responsibility Negative Scale
IAR-T = Intellectual Achievement Responsibility Total Scale
[a] = Semantic Differential - Evaluative Dimension

analysis of covariance confirms this observation. None of the differences between these two groups was significant at the .05 level.

Summary. Clearly, on the criteria of evaluative self-concept and other school-related concepts and on the criteria of responsibility for intellectual achievement, there were no differences after one semester at the North Carolina Advancement School between the residential and day students. Consequently, on these dimensions of self-concept there appears to be no special advantage to the residential aspect of the program.

Further Analysis of Data. The data collected on self-concepts and other related school concepts were also analyzed for mean changes between the occasion of the pre- and post-tests. This analysis was conducted by comparing the mean score for the residential group on the pre test with the mean scored by the residential group on the post test. The statistical analysis applied to these data was the correlated test. The means for these measures may be observed in Table 3.

The statistical analysis indicated that significant changes occurred between the pre- and post-test occasions on five of the ten variables for the Advancement School residential group. No significant differences were observed on the pre- and post-test means on the Semantic Differential--Me at School, Me at Home, Me as I Would Like To Be--and the North Carolina Advancement School. Significant differences were observed between the pre- and post-means on the Semantic Differential - Me at Play, Teachers, and Rules.

All three Intellectual Achievement Responsibility Scales yielded significant differences between pre- and post-test occasions, positive, negative, and total. Significant differences were accepted at the .05 level of confidence.

The following results were obtained from these analyses:

1. The residential students saw themselves less favorably at play at the end of the Advancement School semester than they did at the beginning of the semester.
2. The residential students evaluated teachers in general much less favorably at the end of the semester than they did at the beginning of the semester.
3. The residential students also valued rules less at the end of the semester than they did at the beginning of the semester.
4. On the IAR scales, the residential students changed significantly. On all three of the measures, the change was in the same direction--toward viewing themselves as being more responsible for their achievement, regardless of whether the results were success or failure.

III. RELATIONSHIPS AMONG ACHIEVEMENT, APTITUDE, PERSONALITY, AND SOCIAL FACTORS

Part III of the research strategy during the first term of the Advancement School was designed to systematically collect and analyze preliminary data related to the characteristics contributing to the behavioral syndrome labeled underachievement. The design for this part of the research effort was to obtain the intercorrelations among several variables which previous research and analysis of the concept of underachievement had suggested as being relevant.[7] Interest was particularly focused on the correlations with measures of achievement. Other correlations were obtained for the purposes of forming hypotheses for future research and guiding the future programs of the school.

The Study Group. The group used for this analysis was the North Carolina Advancement School students. Both the residential and day students were included in this analysis. The scores analyzed were obtained on the occasion of the pre test.

The Collection of Data. Data were collected on fifty-five different variables for each Advancement School student. The variables assessed and the code names used in the correlation matrix for these variables are included in Table 4a.

Table 4. Correlation, Means, and Standard Deviations: Pretest Variables. (Continued)

	IARPO	IARNE	IARTO	ANXI	MOD	SDMES	SDMEH	SDMEP	SDTFA	SDRUL	SDMEI	SDNCA	MEANS,	STANDARD DEVIATION
RACE	-3364	0614	-1621	1135	-1111	-2820	-1621	-1242	-1858	-2059	-1324	-2741	1.65714285	0.47809144
SOPOP	-0759	0888	0138	1209	0981	-2407	0015	-1755	-2285	-0931	-0700	-1915	2.74285714	1.05892636
SOPOL	-1859	1409	0037	1260	-0548	-3344	-2032	-1911	-2466	-2403	-1292	-1742	4.24285714	1.56442066
REG	-0211	-1442	-1340	-0159	-1219	-1350	-1932	-0784	0997	-1780	0288	-1537	4.18571428	1.90569594
CITYS	0113	0019	0100	-0213	-0609	1520	1541	2782	0511	2012	1335	-0011	2.02857142	0.83356104
SPM	-1140	-0139	-0825	-1531	-1293	-1520	-1856	-0341	-1229	-0945	1098	-0091	25.91428571	10.49187795
SLAN	1561	-0211	0901	-0568	-1061	-1328	-2105	0562	-0366	0115	0672	-1039	84.45714285	14.72913480
SAC	-0867	-1360	-1817	-0078	-1292	0389	-1223	1052	0051	-0263	1270	-1280	10.41428571	4.06288559
SAA	-1087	-1336	-1895	0617	-0607	-0133	-1085	0134	-0278	-0774	0725	-0820	12.01428571	4.28510347
LTT	-1099	-0857	-1409	-0235	-1747	-2119	-3008	-0312	-0225	-1715	1172	-1173	43.95714285	9.31484044
LTV	-0996	-0818	-1260	-0900	-1909	-1419	-2004	0178	0055	-0894	1513	-0068	46.04285714	11.46189112
LTNV	-0106	-1740	-1551	-0417	-2090	-1357	-3680	-0378	-0196	-2452	1151	-1478	42.25714285	10.19190601
CSST	3160	0316	2476	-2604	0971	3903	1679	1698	2353	2024	2312	1029	70.90000000	15.00835516
CSMA	2509	1275	3037	-1654	0865	3269	1815	1065	1790	1895	0847	1327	24.74285714	6.25933671
CSMM	2824	0692	2541	-2204	1811	2210	1313	0763	1341	1698	2196	0142	31.38571428	6.52374227
CSMP	2120	-1483	0049	-2496	-0701	4478	1048	2201	2827	1531	2981	1360	15.00000000	5.24197108
CPIDO	0460	0760	0945	-2026	1094	1397	1359	2008	0550	2691	0246	0252	42.04285714	9.50733616
CPICS	-1129	1054	0275	-2171	0316	0028	0283	0519	-0147	0579	-0047	-0801	35.80000000	9.58954745
CPISY	2158	1336	2619	-2527	1545	2188	2018	2561	1668	2689	1369	0713	43.07142857	8.16553632
CPISP	-0171	1031	0956	-2655	0795	-0722	-0642	-1037	-0339	-1058	-0733	-0717	43.65714285	9.35280429
CPISA	0222	1116	1226	-1997	0534	0379	-0623	0141	-0165	0619	1040	-0291	48.20000000	10.39871787
CPIWB	0922	0457	1126	-4201	-1635	1073	-0328	1399	-0464	1178	1586	-0760	20.78571428	15.96816838
CPIRE	0115	0744	0665	-0452	0057	-0667	0111	0978	0446	1677	1650	0256	30.30000000	9.61784271
CPISO	1856	0817	2042	-2177	0212	1490	-0182	1939	1064	2431	2056	1132	38.82857142	9.52946829
CPISC	0972	-0745	-0003	-3709	-1380	1680	-0239	0951	0399	1508	0655	0710	36.01428571	8.92885382
CPITO	-0425	0961	0601	-2383	-0108	-0699	0463	-0051	-0267	0281	-1123	-2062	28.25714285	10.10909436
CPIGT	0915	0299	0940	-3184	-0749	3007	2225	2012	1152	2860	0502	1065	39.54285714	8.01210264
CPICM	2641	-0930	1044	-2370	-1750	-0100	-1955	0789	-0116	-0795	2505	-0514	27.84285714	19.56382028
CPIAC	2128	-0820	0879	-4809	-1339	3809	-0034	2187	1242	2657	3143	1733	32.35714285	11.28039946
CPIAI	-1006	0331	-0265	-2246	0610	-0358	0392	-0347	-1384	1066	-1200	-2040	33.98571428	9.09131271
CPILF	2126	1546	2892	-3142	0460	0903	1225	1134	0257	2497	1202	-0258	24.71428571	13.12828880
CPIPY	-0502	-1474	-1578	-3333	-1091	1726	1476	1280	0071	1069	0597	0379	42.42857142	9.78844546
CPIFX	-2343	0889	-0691	0585	-0347	-1693	-1142	-1390	-0954	-0325	-0915	-0200	48.07142857	11.41613583
CPIFE	1512	-0723	0277	0144	0402	1503	0556	2471	2256	2261	0708	0616	50.57142857	8.57122153
DRC	0145	-2192	-1647	-2387	-2954	-0988	-3353	0018	-0055	-1873	2439	-0229	4.44285714	2.11711941
DRV	-1769	-1209	-2108	-2104	-2363	-0988	-1540	0299	-1201	-1560	0820	-1668	4.00000000	2.11276314
DRS	-0464	-0180	-0440	0111	-0351	-0208	-2913	-1227	-0546	-1570	0977	-0522	4.21428571	1.57786185
DRSD	0487	-2367	-1686	-2316	-2710	-0986	-3471	1438	-0173	-1124	2333	-0725	3.28571428	1.74574312
DRB	-0933	1645	0616	1302	1223	-2205	-0396	0447	-0746	0796	-0007	-0595	3.47142857	1.79952834
DRRR	-2612	2292	0170	1901	1991	-2058	0609	-1380	-0048	0133	-1891	-0339	3.61428571	1.45754267
DMCON	-0853	-3577	-3718	-1811	-3464	0470	-2649	1404	0865	-2223	1912	0139	3.88571428	1.77374456
DMCOM	1810	-2182	-0755	-1533	-1248	1092	-2040	1647	1834	-0063	0620	-0900	2.22857142	1.38492325
DMCPP	-3121	4133	1264	4584	3580	-4113	1067	-2231	-2528	-0349	-2812	-1937	2.70000000	1.47785587
IARPO		-1956	5056	-2906	-1897	2333	-1813	2384	2427	0512	3294	1038	11.50000000	3.06334098
IARNE			7412	6576	7347	-5372	3969	-4667	-4385	0777	-5118	-1580	11.70000000	5.33066056
IARTO				3496	4718	-2932	2050	-2453	-2139	0869	-1999	-0657	23.05714285	4.97788068
ANXI					6148	-6212	1684	-4863	-3413	-1893	-4809	-1829	8.41428571	6.38951327
MOD						-4202	3738	-4086	-2844	1098	-5203	-1447	2.20000000	4.96246783
SDMES							1587	6043	4638	3698	5305	4585	40.94285714	7.56208259
SDMEH								0812	-1470	4311	-2412	1389	43.17142857	9.88626837
SDMEP									5792	4623	5078	2522	46.00000000	7.56038493
SDTEA										2651	4098	2782	42.61428571	11.13590987
SDRUL											1031	2373	42.18571428	8.17612795
SDMEI												3930	50.90000000	7.18724716
SDNCA													45.30000000	9.04473583

Table 4. Correlation, Means, and Standard Deviations: Pretest Variables. (Continued)

	CPIRE	CPISO	CPISC	CPITO	CPIGI	CPICM	CPIAC	CPIAI	CPILE	CPIPY	CPIFX	CPIFE	DRC	DRV	DRS	DRSD	DRB	DRRB	DMCON	DMCOM	DMCFR
RACF	-0655	-1371	-2059	-0264	-2458	0034	-3558	-0711	-1728	-1229	2621	-3122	3240	4591	2332	3795	2074	2858	1923	0544	1394
SOPOF	0176	-2126	-2295	-0194	-2053	-0621	-2773	-0274	-0845	-1178	1334	-1544	4394	5635	2069	3147	2622	3197	2078	-0482	2926
SOPOI	0731	-1157	-2492	0088	-2419	0424	-2718	-0853	-0629	-1905	0801	-2655	4440	5524	2252	4146	2315	3022	2295	0275	2450
REG	-1058	-1003	-0589	0042	-0750	-1476	-1278	0076	-1901	0570	0153	0173	2738	1907	0877	2147	0755	-1199	1821	-0712	0457
CITYS	0621	1119	2511	0197	3470	-0326	1900	1453	0577	0837	-0915	2309	-2043	-1975	-0708	-1152	1068	-0146	0022	0444	0541
SPM	0818	1880	-0323	3333	-0921	2983	0164	1528	3318	0768	2457	-1649	8218	6747	5395	5829	4051	3437	4472	0831	3338
SLAN	1019	1625	-0717	1217	-0787	3924	0613	1339	2332	-0665	0075	1060	5790	4401	5681	5556	5084	1521	3681	1965	2953
SAC	-0859	0973	0649	0908	-0542	0269	0213	-0061	-0458	-0052	-0881	-0626	1384	0185	2617	1220	1949	-1537	3203	4671	3685
SAA	-1797	-2568	-2856	-1165	-3151	0098	-2309	-0807	-1864	-2257	0097	-1931	2261	2001	1603	2803	2020	-0640	4063	3559	3691
LTT	0933	0405	-1620	1954	-1841	2313	-0441	1081	2054	0318	1510	-1363	7513	6141	5755	6308	4456	2656	5330	1681	4464
LTV	1238	1582	-1009	3065	-1034	2840	0183	1577	2983	-0601	1336	-1983	8018	6313	4915	6092	5280	3766	4564	1418	3524
LTNV	0253	-0757	-1642	0134	-2200	1562	-0605	0230	0497	1528	1170	-0506	4930	4199	5066	4959	1647	0175	4970	1692	3400
CSST	1442	5513	3490	2166	3063	2618	5438	1058	3940	1269	-3008	2063	-2129	-2079	-0908	-2024	-1967	-0819	-2225	-1076	-1810
CSMA	0918	4042	2243	1492	2461	1052	3365	1135	2821	1297	-1611	2034	-2985	-1961	-1029	-2465	-2438	-1190	-2572	-2204	-1917
CSMM	1667	5745	2128	1909	1134	4461	5172	0443	3937	-0044	-3792	0330	-0755	-1293	-0686	-1459	-1700	0189	-1952	-0355	-1125
CSMP	0991	3246	4291	1413	3968	0375	4646	0760	2478	2211	-2053	2974	-1919	-2368	-0858	-1457	-1060	-1346	-1091	-0199	-1814
CPIDO	4361	2449	0245	1913	1324	1207	3929	1435	4729	2731	-0658	0848	-0974	-0447	-0180	1738	0885	0189	-0289	-0304	-0083
CPICS	1906	2689	3307	6329	4050	0881	3528	4614	5073	4556	2004	-0393	1193	1223	0316	1194	2003	0576	-0039	-0641	1081
CPISY	2883	3378	0548	3122	2082	3042	4692	1304	5785	1718	-1241	0673	0090	-0823	0044	0707	-0052	0900	-0804	-0937	-0354
CPISP	0298	0920	0252	5610	0522	2197	1918	3442	4690	3153	2231	-3952	3239	3058	1602	2821	0631	1209	0884	-0531	0899
CPISA	2012	1505	-0579	1966	0407	2489	3582	0969	4898	1003	0598	-0957	1427	0903	1404	1397	0614	0778	0554	-1129	0473
CPIWB	1817	5428	5074	6093	4225	5329	5287	4381	5644	3170	1252	-1756	3338	2757	2923	2335	2053	1246	0656	0913	0236
CPIRE		4874	1342	2496	1169	2959	3925	1223	4546	1031	-0850	2788	-0158	-0741	0530	1700	0871	2606	0266	0382	-0455
CPISO			4146	3688	2330	5584	5813	1895	5620	0346	-1013	1724	1474	0115	2135	1327	1222	2236	-0414	0030	-0664
CPISC				5580	7565	0868	5834	5145	3430	3761	0725	2691	-0586	-0891	-0115	-1759	0843	0015	-0685	0630	-1084
CPITO					5579	1377	4656	6872	6017	4600	2643	-0301	2194	1194	1809	0943	1812	1809	0566	0526	1167
CPIGI						-0973	5120	5773	4053	4637	0591	2855	-1425	-1592	-0288	-1811	0875	-1133	-0547	0160	-0778
CPICM							3291	0069	4578	-1522	-2632	-0492	3306	1984	3217	3293	1153	1498	0387	0858	-1590
CPIAC								4338	5994	2985	-0632	2793	0060	-1453	-0108	0631	0879	0032	0266	1190	-1565
CPIAI									3873	5920	2894	1154	1049	0490	0547	1235	2271	0028	1212	0934	1032
CPILE										2654	-0471	0599	2006	0611	2142	2571	2180	0683	-0151	0163	0007
CPIPY											2497	2098	0039	-0119	-0022	1343	-0791	-0603	0654	0108	-0841
CPIFX												-0250	0628	1315	0980	1204	1422	1758	1893	-0422	1602
CPIFE													-2289	-2240	-1324	-1079	-0064	0527	-1205	0596	-0823
DRC														7387	5221	6475	4046	2628	4459	0242	1774
DRV															3695	5854	3430	2776	3441	-0297	2506
DRS																4509	2956	1120	3351	2027	2206
DRSD																	5377	1407	4834	1464	1179
DRB																		1642	2940	0724	4299
DRRB																			-0845	-0849	1137
DMCON																				4355	4400
DMCOM																					3172

Table 4. Correlation, Means, and Standard Deviations: Pretest Variables.

	SOPOE	SOPOI	REG	CITYS	SPM	SLAN	SAC	SAA	LTT	LTV	LTNV	CSST	CSMA	CSMM	CSMP	CPIDO	CPICS	CPISY	CPISP	CPISA	CPIWB
RACE	3958	7330	3890	-2659	3003	0328	0443	2358	2927	3465	1373	-3684	-4124	-3054	-1850	-2581	-1479	-3500	0187	-1813	0282
SOPOE		5806	0886	-0736	3645	3087	-0422	1892	3911	3901	2492	-1493	-2047	-0903	-1174	-0449	0005	-0632	0743	1297	-0915
SOPOI			3152	-3165	3986	2026	0021	1853	4572	4795	2823	-3699	-3679	-2933	-2544	-1595	-1107	-1942	1335	-0110	-0002
REG				-2041	0500	-0025	0835	1895	2559	1555	2683	-0788	-0882	-1107	0420	-2220	-1073	-2858	-0508	-1832	-1348
CITYS					-2085	0213	1590	-0934	-1398	-1290	-1475	2110	1653	1178	2454	1479	1874	1572	-2589	0695	0200
SPM						5968	2146	2511	7438	8095	4558	-2427	-2964	-1288	-2313	-0268	2042	0641	4246	2307	3998
SLAN							2176	2949	7029	6602	5425	-1799	-1695	-0643	-2727	-0037	0160	0409	1185	1882	1849
SAC								4574	2899	2548	2619	-0527	-1393	-0230	0340	-1843	0281	-1782	-0961	-0863	0612
SAA									4713	4007	4196	-3159	-3472	-1811	-2632	-2440	-1646	-2158	0362	-0657	-1609
LTT										8690	8340	-3602	-4003	-1998	-3318	-0618	0912	-0058	2989	2563	1746
LTV											4717	-2806	-3571	-1170	-2812	-1146	1629	0369	3285	1502	2456
LTNV												-3062	-3015	-2018	-2579	0040	-0261	-0479	2147	2801	0811
CSST													8269	8577	7440	2832	3146	4408	1148	2502	2926
CSMA														5841	4165	2668	2796	3443	1262	2174	1506
CSMM															4797	2217	2734	4238	2021	2972	3607
CSMP																2276	1899	2918	-0824	0731	1514
CPIDO																	3952	6447	3007	4804	1828
CPICS																		4047	5064	3721	4628
CPISY																			4700	5630	3138
CPISP																				4155	4813
CPISA																					3244

Table 4a

VARIABLE CODE

RACE = Race (1 = Negro; 2 = White)

SOPOE = Social Position of Parents: Education (1 = 6 years or less; 2 = 7-11 years; 3 = 12 years; 4 = over 12 years)

SOPOI = Social Position of Parents: Income (1 = welfare; 2 = under $2,000; 3 = $2,000-$4,000; 4 = $4,000-$6,000; 5 = $6,000-$8,000; 6 = over $8,000)

REG = Region of State (Classified by North Carolina Educational Districts)

CITYS = City Size (1 = over 60,000; 2 = 10,000-60,000; 3 = under 10,000)

SPM = Stanford Achievement Test: Paragraph Meaning

SLAN = Stanford Achievement Test: Language

SAC = Stanford Achievement Test: Arithmetic Computations

SAA = Stanford Achievement Test: Arithmetic Application

LTT = Lorge-Thorndike Intelligence Test: Total

LTV = Lorge-Thorndike Intelligence Test: Verbal

LTNV = Lorge-Thorndike Intelligence Test: Non-Verbal

CSST = California Study Methods Survey: Total

CSMA = California Study Methods Survey: Attitudes Toward School

Table 4a (continued)

CSMM = California Study Methods Survey: Mechanics of Study

CSMP = California Study Methods Survey: Planning & System

CPI DO = California Psychological Inventory: Dominance

CPI CS = California Psychological Inventory: Capacity for Status

CPI SY = California Psychological Inventory: Sociability

CPI SP = California Psychological Inventory: Social Presence

CPI SA = California Psychological Inventory: Self-Acceptance

CPI WB = California Psychological Inventory: Sense of Well-Being

CPI RE = California Psychological Inventory: Responsibility

CPI SO = California Psychological Inventory: Socialization

CPI SC = California Psychological Inventory: Self-Control

CPI TO = California Psychological Inventory: Tolerance

CPI GI = California Psychological Inventory: Good Impression

CPI CM = California Psychological Inventory: Communality

CPI AC = California Psychological Inventory: Achievement via Conformance

CPI AI = California Psychological Inventory: Achievement via Independence

CPI IE = California Psychological Inventory: Intellectual Efficiency

Table 4a (continued)

CPI PY = California Psychological Inventory: Psychological Mindedness

CPI FX = California Psychological Inventory: Flexibility

CPI FE = California Psychological Inventory: Femininity

DRC = Stanford Diagnostic Reading Test: Reading Comprehension

DRV = Stanford Diagnostic Reading Test: Vocabulary

DRS = Stanford Diagnostic Reading Test: Syllabication

DRSD = Stanford Diagnostic Reading Test: Sound Discrimination

DRB = Stanford Diagnostic Reading Test: Blending

DRRR = Stanford Diagnostic Reading Test: Rate of Reading

DMCON = Stanford Diagnostic Arithmetic Test: Arithmetic Concepts

DMCOM = Stanford Diagnostic Arithmetic Test: Arithmetic Computations

DMCFR = Stanford Diagnostic Arithmetic Test: Common Fractions

IARPO = Intellectual Achievement Responsibility: Positive

IARNE = Intellectual Achievement Responsibility: Negative

IARTO = Intellectual Achievement Responsibility: Total

ANXI = Children's Manifest Anxiety Scale

MOD = Memory for Designs

SDMES = Semantic Differential: Me at School (Evaluation)

Table 4a (continued)

SDMEH = Semantic Differential: Me at Home (Evaluation)

SDMEP = Semantic Differential: Me at Play (Evaluation)

SDTEA = Semantic Differential: Teachers (Evaluation)

SDRUL = Semantic Differential: Rules (Evaluation)

SDMEI = Semantic Differential: Me as I Would Like To Be (Evaluation)

SDNCA = Semantic Differential: North Carolina Advancement School

Analysis of the Data. In addition to all possible intercorrelations among the variables assessed, multiple correlations were obtained between each of the achievement variables and the other variables available for the students. For individual correlations, a correlation of .14 is significant at the .05 level of confidence, and a correlation of .19 is significant at the .01 level of confidence. The significance of the multiple correlations will be discussed individually.

Results of the Analysis. Table 4 presents the complete correlation matrix of all the variables available for the North Carolina Advancement School students on the occasion of the pre test. There were 55 different variables in this table, and data were obtained for 141 boys, both residential and day students included.

The variables have been classified into the following types: Achievement, Aptitude, and Study Skills. The pattern of correlations with these variables is discussed in the following section.

1. Achievement. Four sets of multiple correlations were tabulated, using each of the measures of achievement as the dependent variable (Paragraph Meaning, Language, Arithmetic Computation, and Arithmetic Application), and all the other variables as the predictors. These multiple correlations were done in a step-wise

fashion; i.e., the independent variables were added to the multiple correlation in the order of their contribution toward predicting the dependent variable. Each of the multiple correlations was generated on the basis of the correlation matrix in Table 4; consequently, the relations of the variables assessed to achievement have been discussed in terms of the multiple correlations. Only the five most important predictors will be discussed.

a. Achievement: Paragraph Meaning. The highest correlation between other variables and scores on the Paragraph Meaning test was scores on the Diagnostic Reading Comprehension test (R = .82). With the addition of four more predictor variables, the multiple correlation with the Paragraph Meaning test increased to .90. The maximum correlation achieved with all the variables included was .97. The five most important variables in order of their contribution were Diagnostic Reading Comprehension, Verbal Intelligence, Flexibility as measured by the California Psychological Inventory, Region of the State, and Intellectual Achievement Responsibility - Negative. These five factors accounted for approximately 81 per cent of the variance of the Paragraph Meaning scores.

b. Achievement: Language. The highest correlation between the variables and scores on the Language test was scores on the Lorge-Thorndike Intelligence-Total (R = .70). With the addition of four more predictor variables the multiple correlation with the Language test increased to .81. The maximum multiple correlation achieved with all the variables included was .95. The five most potent variables in the order of their contribution were Intelligence - Total, Communality as measured by the California Psychological Inventory, Diagnostic Reading-Blending, Femininity as measured by the California Psychological Inventory, and Intellectual Achievement Responsibility - Positive. These five factors accounted for approximately 66 per cent of the variance of the Language test scores.

c. Achievement: Arithmetic Computation. The highest correlation between other variables and scores on the Arithmetic Computations test was scores on the Diagnostic Arithmetic Computation (R = .47). With the addition of four more predictor variables, the multiple correlation increased to .64. This was by far the less precise prediction of all the achievement variables. The maximum multiple correlation achieved with all the variables included was .89. The five most important variables in the order of their contribution were Diagnostic Arithmetic Computation, Arithmetic Applications - Achievement, Socialization as measured by the California Psychological Inventory, City Size, and Sociability as measured by the California Psychological Inventory. These five factors accounted for approximately 41 per cent of the variance of the Arithmetic Computations test scores.

d. Achievement: Arithmetic Applications. The highest correlation between other variables and scores on the Arithmetic Applications test was scores on the Lorge-Thorndike Intelligence - Total (R = .47). With the addition of four more predictor variables, the multiple correlation with Arithmetic Applications increased to .71. The maximum multiple correlation achieved with all the variables included was .92. The five most potent variables in the order of their contribution were Intelligence - Total, Arithmetic Computations - Achievement, Socialization as measured by the California Psychological Inventory, Psychological-Mindedness as measured by the California Psychological Inventory, and As I See Myself at School. These five factors accounted for approximately 50 per cent of the variance of the Arithmetic Application test scores.

A summary of these results revealed some interesting descriptive information. First, the relatively high multiple correlations obtained were rather unusual. This is particularly true since the range of scores on the dependent variables (achievement) was in each case rather limited. However, the most revealing aspect was the important contribution made by personality-type variables. For two of the achievement variables studied - Language and Arithmetic Applications - three out of the five most important predictors were personality variables. In the other two achievement variables studied - Paragraph Meaning and Arithmetic Computations - two of the five most important predictors were personality variables. This lends considerable support to the idea that personality characteristics are of prime importance in the achievement pattern of these students. In addition, ability measures were either the first or second best predictors for three out of the four achievement measures.

2. Study Methods. The assessments of study habits provided by the California Study Methods Survey were found to be related in significant and meaningful patterns to other important characteristics of underachievers. Other

research studies on the phenomenon of underachievement tends to indicate that student behavior related to study methods and habits is of prime importance. In this sample, the average scores on the various sections of the Study Methods Survey were in the tenth percentile.

a. Study Methods and Personality.[8] A pattern of significant and sizable correlations emerged between personality attributes and the various facets of study methods. The total score on the study methods instrument is designed to indicate the general orientation of the student to school-related study. The following correlations between study methods and personality were found to be significant at the .01 level: Dominance (r = .28); Capacity for Status (r = .32); Sociability (r = .44); Self-Acceptance (r = .25); Sense of Well-Being (r = .29); Socialization (r = .55); Self-Control (r = .35); Tolerance (r = .22); Good Impression (r = .31); Communality (r = .26); Achievement via Conformance (r = .54); Intellectual Efficiency (r = .39); Flexibility (r =-.30); and Femininity (r = .21). The pattern of correlation between the personality attributes and the sub-scales of the study methods (that is, Attitude Toward School, Mechanics of Study, and Planning and System) followed closely the correlation pattern established with the total study methods scale. This can be clearly discerned by an analysis of the total matrix. Generally, a meaningful pattern of relationship is observed between study methods and personality. It is quite apparent that an individual with low scores on the study methods scale tends to have personality attributes classified as being inhibited, shy, passive, defensive, impulsive, insecure, and disorganized. This information can be quite useful to the Advancement School in providing experiences which will aid in the development of certain personality characteristics.

b. Study Methods and Views of the Self. Study methods-total scores were significantly correlated with assessments of the student's view of himself. For example, study methods were significantly correlated with feeling responsible for academic success (r = .32); feeling responsible for academic achievement regardless of whether it is classified as being a success or failure (r = .25); Anxiety (r =-.26)[9]; Myself at School (r = .39); and Myself as I Would Like To Be (r = .23). The pattern of correlations for the sub-scales on the Study Methods Survey and the above variables followed the same pattern.

Generally, a favorable concept of self at school, combined with low anxiety and feeling personally responsible for one's achievement accomplishments, were all significantly related to high scores on the Study Methods Survey.

c. Study Methods and Social Background Variables. High correlations were discernible between scores on the Study Methods Survey and the social background variables assessed. Study Methods Total scores were significantly correlated with race (r = -.37); income of parents (r = .37); and size of city from which the student came (r = .21). The sub-scales of the Study Methods Survey follow the same pattern as the total scores.

This pattern indicated that Negro students had better study skills than white students, that students from lower income families had better skills than students from higher income families, and that students from larger cities had better study skills than students from smaller cities and towns.

3. Aptitude. The assessments of aptitude yielded two scores -- Verbal Aptitude and Non-Verbal Aptitude. Both the verbal and non-verbal intelligence correlated highly

with personality characteristics, social background variables, and views of the self.

a. Intelligence and personality. Six personality characteristics as measured by the California Psychological Inventory correlated highly with verbal intelligence. These were Social Presence (r = .30); Sense of Well-Being (r = .25); Tolerance (r = .31); Communality (r = .28); Intellectual Efficiency (r = .30); and Femininity (r = -.20). Two personality factors were significantly correlated with non-verbal intelligence. These were Self-Acceptance (r = .28) and Good Impression (r = -.22).

b. Intelligence and Views of the Self. Only one factor of self-concept was significantly related with the measure of intelligence. This factor was Myself at Home as measured on the Semantic Differential. This characteristic was correlated with verbal intelligence (r = -.20) and with non-verbal intelligence (r = -.37). These data suggest that the individual who scores high on intelligence tests sees himself less favorably at home. This single correlate may be quite important in understanding the phenomenon of underachievement.

c. Intelligence and Social Background Variables. Verbal intelligence scores were significantly correlated with race (r = .35); education of father (r = .39), and income of father (r = .48). Non-verbal intelligence scores were significantly correlated with education of father (r = .25); income of father(r = .28), and the region of the state from which the student came (r = .27).

IV. A PROFILE OF STUDENTS CLASSIFIED AS UNDERACHIEVERS IN THE NORTH CAROLINA ADVANCEMENT SCHOOL

Table 5 presents a profile of the objectively measured characteristics of the students at the North Carolina Advancement School on the occasion of the pre test. Several characteristics immediately stand out in addition to the necessary and obvious condition that the students were of average ability on measured intelligence but were low achievers on the achievement tests.

1. Study Habits. These students obtained extremely low scores on the measures of study methods. The Study Methods - Total Score, Attitude Toward School sub-test, and Mechanics of Study sub-test were all around two standard deviations below the mean of the national norm group (tenth percentile for Total and Mechanics of Study and twentieth percentile for Attitude Toward

Table 5. Mean Norm Scores for Residential and Day Students (n=141) on Tests Used at the North Carolina Advancement School: Pre-test Data.

Tests	Pre-test Mean	Tests	Pre-test Mean
Achievement:[a]		Anxiety:[e]	8
Paragraph Meaning	6.5		
Language	6.3	IAR:[e]	
Arithmetic Computation	5.8	Positive	11
Arithmetic Application	5.4	Negative	12
		Total	23
IQ:[b]			
Verbal IQ	99	Views of Self:[e]	
Non-Verbal IQ	98	School	41
		Home	43
Study Methods:[c]		Play	46
Total	10	Ideal Self	51
Attitude toward School	20		
Mechanics of Study	10		
Planning & System	30		
Psychological Inventory:[d]			
Dominance	42		
Capacity for Status	36		
Sociability	43		
Social Presence	44		
Self-Acceptance	48		
Sense of Well-Being	21		
Responsibility	30		
Socialization	39		
Self-Control	36		
Tolerance	28		
Good Impression	40		
Communality	28		
Achievement via Conformance	32		
Achievement via Independence	34		
Intellectual Efficiency	25		
Psychological Mindedness	42		
Flexibility	48		
Femininity	51		

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a - Reported in Grade Equivalents.
b - I.Q. Scores: Mean = 100; Standard deviation = 16.
c - Reported in percentiles.
d - Standard Scores: Mean = 50; Standard deviation = 10.
e - No norm group; raw score mean reported (note discussion for score magnitude relative to scale limits).

School). The Planning and System sub-test was one-half a standard deviation below the national norm (thirtieth percentile). These data clearly indicate an important element for program development to pursue.

2. Personality. The profile of personality traits of these students was highly skewed. Scores on eight traits were around one standard deviation below the mean for the norm group (about twentieth percentile) - T score of 36-44; six trait scores were around two standard deviations below the mean (about the fifth percentile) - T score of 25-35; and one trait score was three standard deviations below the mean (the first percentile) - T score of 21. Three trait scores were around the mean for the norm group - T score 48-51. The eight personality traits one standard deviation below the norm mean were Dominance, Capacity for Status, Sociability, Social Presence, Socialization, Self-Control, Good Impression, and Psychological-Mindedness. The six personality traits two standard deviations below the norm mean were Responsibility, Tolerance, Communality, Achievement via Conformance, Achievement via Independence, and Intellectual Efficiency. The one personality trait three standard deviations below the norm mean was Sense of Well-Being.

Three personality traits were near the mean for the national sample. They were Self-Acceptance, Flexibility, and Femininity. This profile generally presents a picture of a group of students who have little poise, ascendency, and self-assurance; who are highly immature and irresponsible for their age; and who have low achievement motivation. They do, however, have average self-acceptance, flexibility, and masculine interests.

3. Views of Self. A profile of these characteristics was more difficult to determine because no national norms existed against which to make relative comparisons. However, comparisons were made relative to the internal limits of the scale and between scales. On the Semantic Differential Scales, the scale mean in each case was a score of 33 indicating a neutral view of whatever was being rated. The range of possible scores on this scale was from 11 to 55. Generally, these students saw themselves above the scale mean for a neutral view - Me at School mean of 41, Me at Home mean of 43, Me at Play mean of 46. They tended to see themselves more favorably the more removed from school they became. Myself as I Would Like To Be was given a mean rating of 51. This was considerably more favorable than the view of self in real situations, particularly school.

These students also indicated that they had about average amounts of anxiety relative to the scale limits. The maximum possible score (high anxiety) on the scale was 20 with a scale mean of 10. The mean score for this group was 8 - somewhat below the scale mean. On the assignment of responsibility for intellectual achievement, these students tended to place responsibility somewhat more on themselves than on outside forces. The majority of the group was clearly committed to this position - mean for group of 23 with a standard deviation of 5. The IAR Total Scale had a range from 0-34 with a scale mean of 17. Thus the mean obtained for these students on the pre test was clearly above the mean obtainable by checking the items in such a way to indicate indecision as to where to assign responsibility - to themselves or to the environment not controllable by them. The same pattern existed for both the positive and negative sub-scales. However, in comparison to another group of eighth-grade boys reported in the literature, these Advancement School boys tended to place somewhat less emphasis on their own responsibility for achievement. The mean IAR - Total score for this "average" group of eighth-grade boys was 25 (compare NCAS mean of 23). The mean score for this "average" group on the positive scale of the IAR was 13 (compare NCAS mean of 11). The mean score of both the "average" group and the NCAS group on the negative scale of the IAR was 12. Generally, this profile contrast suggests that Advancement School boys saw themselves more responsible for their successes than their failures relative to the average group.

The ultimate value of this profile awaits detailed study and the consequent formation of testable hypotheses in the further operation of programs to aid underachieving students.

CHAPTER III

AN EVALUATION OF THE COUNSELING AND INSTRUCTIONAL PROGRAMS OF THE NORTH CAROLINA ADVANCEMENT SCHOOL

The philosophy of the North Carolina Advancement School as depicted in Chapter I of this report was predicated on the belief that self-concept is highly related to the phenomenon of underachievement. This fact was further emphasized in Chapter II in which high correlations were found to exist between personality characteristics and underachievement. These facts tend to support the view that the underachiever is characterized by intense emotional problems, which prevent him from achieving at his expected level. Therefore, both the counseling and instructional programs of the North Carolina Advancement School were designed around the belief that the paramount objective of good teaching incorporates the counseling function.

I. THE COUNSELING PROGRAM

The major impetus behind the counseling program of the North Carolina Advancement School during the spring of 1968 was the concept that any student, regardless of the severity of his learning problem, would express himself in an open and accepting atmosphere. This expression is necessary if a change in attitude toward learning is to take place. This concept, essentially client-centered by nature, permeated the role of the counselors throughout the semester.

The counseling department consisted of six resident language arts/social studies counselors who assumed four basic roles:

1. Professional counselor
2. Language arts/social studies teacher
3. Dormitory supervisor
4. Researcher

In addition, there were two day program language arts/ social studies counselors who were expected to be professional counselors as well as language arts/social studies teachers and researchers, but had no dormitory responsibilities. These eight counselors coordinated their activities through the guidance department. A coordinator of guidance and counseling supervised all aspects of the counselor's responsibilities, with the exception of the instructional activities provided through the language arts/social studies classes. He resided in the dormitory and was directly responsible for most evening and weekend activities. In addition, he was director of admissions and of the testing program.

Throughout the spring semester, counselors assumed the role of students as efforts were made to continually learn, work, and grow together. Workshops were planned for counselors to implement their background in professional client-centered counseling. These workshops included sessions directed by consultants in clinical psychology and in research. It also included demonstrations and discussions directed by the coordinator of guidance and counseling. Professional counseling training was extended to include all staff members, since they were called upon as resource experts in their fields, and as counselors working with the same boys.

Each counselor was randomly assigned eighteen eighth-grade boys, who were achieving at least one year behind their expected grade level as determined by standardized tests given in their schools. In ability, these students were average or above average. The counselor's main responsibility was in helping the boys change their attitudes toward learning, in helping them identify problems which prohibited them from learning with proficiency, and in helping them set realistic goals. It was hoped that this would aid each boy in approaching learning from a positive standpoint.

The subject matter content of the language arts/social studies block or humanities block was determined on a cooperative basis between the counselor and his group of eighteen boys. Learning experiences were designed by the counselors, based on the needs of the individual students as well as the needs of the group. Group problem-solving techniques and sociometric devices were frequently used. For example, boys were encouraged to examine sociological concepts through the use of group discussion, group therapy, role playing, sociodrama, and individual projects. These learning experiences were so designed as to provide constant feed-back for the counselor analyzing his teaching techniques.

The six resident counselors who lived in the dormitory with their group of eighteen boys had further opportunities to extend the counseling function into the evening hours. Evening hours were used by counselors to conduct individual counseling sessions. These were principally devoted to a discussion of problems identified by individual boys. It should be noted that the two non-resident counselors did not have this same opportunity, due to the fact that day students went home each day at the conclusion of the instructional program.

Every other weekend half of the resident students went home. The counselor remained on duty on those weekends that his boys remained at the Advancement School, but his role shifted from that of professional counselor to one of supervisor of weekend recreation. Because of the intense relationships developed through the humanities block, through individual counseling activities, and through supervision of recreational activities, each counselor became very familiar with each boy assigned to him, and was able to identify many of the problems the boys were facing.

Thus the counseling program was regarded as the core of the total program at the Advancement School. All other staff members and all facilities were regarded as resources to the counseling situation. The coordinator of guidance and counseling, the consultant in clinical psychology, the consultant in research, the staff medical doctor and the nurse, the consultant neurologist, and academic specialists on the staff aided each counselor in working with individual and group problems.

The basic policy of the school required counselors to work in conjunction with all these resources in helping a boy identify and overcome problem areas. A recommendation for sending a boy home was not made until it was determined that the school or its resources could not aid the boy in coping with his problems. A team approach to problem-solving was used, and parent conferences were encouraged. In each instance when it was deemed necessary to send a boy home, this action was preceded by discussions with parents and with staff members who possessed relevant information concerning the problem, and with the boy involved. Case studies were compiled, which represented the best professional analysis of the situation for a particular boy. These case studies also incorporated recommendations suggesting future approaches and experiences from which the boy might benefit.

Occasionally, a counselor felt that someone other than he could work more effectively with a particular boy's problem. The coordinator of guidance and counseling scheduled individual sessions with the boy. Small group therapy sessions were conducted to work on problems which were common to several boys. Continual workshops were held to insure that counseling sessions were conducted on a professional level using a client-centered approach.

Since the counseling function was basic to the operation of the total program of the North Carolina Advancement School, the following recommendations are made:

1. The role of dormitory supervisor cannot be fulfilled by the counselor alone. His multiple roles of teacher-counselor-researcher are in themselves very time consuming. The responsibility of menial dormitory tasks, as well as the role of disciplinarian, limits his effectiveness in the counseling situation, which is dependent upon a client-centered approach to counseling. The counselor must establish a

relationship with each boy which encourages the individual boy to confide in the counselor. To assume the role of disciplinarian detracts from this function and to assume the role of chaperone and janitor does not provide enough time for the counselor to adequately discharge his other responsibilities. Assistant counselors should be employed to assume the quasi-professional role of dormitory supervisor and recreation chaperone, which would eliminate the confusion of roles. This would free the counselor to become more personally involved in research.

2. A full-time psychologist, rather than a consultant, should be retained. His aid in integrating behavior and in identifying problems would be most beneficial, since a more comprehensive evaluation of intellectual weaknesses and strengths is needed if learning problems are to be identified quickly. The psychologist would aid in acquiring a more comprehensive intellectual evaluation than is available now, as well as giving a more professional clinical interpretation of behavior.
3. A full-time janitor should be on duty in the dormitory so that the facilities can be maintained in constant working condition and in the cleanest condition

possible. Only then can self-respect and, consequently, respect for others be developed on the part of these youngsters. In addition, the present janitorial staff is not large enough to insure adequate cleanliness demanded by health regulations.

4. Opportunities for each counselor to visit the homes of the boys with whom he works should be provided. This should be done at least twice during an academic semester. During the spring semester of 1968, each counselor was afforded one opportunity to visit the homes of his students. The information gained from these visits proved to be invaluable. A more detailed description of the home visitation program is incorporated in this chapter.
5. Continuing efforts should be made to involve all staff members in the counseling process. Further integration of the Advancement School instructional program with the counselor's role is also advisable.
6. Evaluation of each boy's stay at the Advancement School via a case study approach should be continued and refined. The information contained in such reports has been found to be much more comprehensive than other more popular forms of evaluation and reporting to parents in schools. During the spring

semester of 1968, case studies were compiled on each boy who attended the Advancement School. Each case study was sent home to the boy's parents or guardian; and a copy of the case study was sent to the boy's home school, together with results obtained from our standardized testing program.

II. EVALUATION OF THE INSTRUCTIONAL PROGRAM

The underlying tenet of the overall instructional program revolved around the role of the teacher as a counselor, and in providing opportunities for youngsters to see themselves in a more favorable light as a learner. In order to accomplish these tasks, teachers made a concerted effort to provide for individual needs, interests, and abilities of each student. These interests, needs, and abilities were determined on the basis of diagnostic test data provided through the home school records, through the testing program of the North Carolina Advancement School, and through personal counseling sessions by the language arts/social studies counselors. On the basis of this information, individualized programs in each of the academic areas were designed for students. The following description presents highlights of the instructional program in each of the academic areas.

The Humanities Block. Eight humanities classes operated during the instructional day. The same eighteen boys who constituted a house in the dormitory also composed a humanities class. This class was led by the language arts/social studies counselor, who was highly skilled in academic areas of language arts and social studies, and who had evidenced great skill in working with students in small group and in individual situations. The pervading theme of the humanities program centered around the concept of change and how change relates and influences lives of eighth-grade boys. This approach tended to unify the overall approach of all eight counselors in providing learning experiences. In addition, each humanities class possessed its own character. The curriculum for a particular class was determined cooperatively by the language arts/social studies counselor and the eighteen boys constituting the class. Topics studied were developed around problem areas determined to be of great importance to these students. Examples of units of study incorporated in the humanities block follow:

1. Contemporary issues in modern American society. Such issues as the war in Vietnam, racial violence and civil disobedience, and other domestic affairs were discussed and critically analyzed. Great emphasis was placed on the individual making decisions which stress the importance of responsible behavior in guarding our freedoms.

2. Sex education. Emphasis was placed on the physiology of sex as well as moral attitudes and behavior. Students were given opportunities to explore their own feelings regarding sex and to study about the feelings of the opposite sex in relation to sexual behavior. These issues were treated in a highly professional manner and in such a way as to encourage individual responsibility in decisions regarding sex education.
3. Re-entry problems. Toward the end of the semester, counselors began to work with the problems the students must face when they returned to their homes and schools. Groups were encouraged to discuss and act out anxieties and hostilities. Emphasis was placed on the student's arriving at his own solutions to problems and on acceptance of responsibility for his behavior.

The Reading Program. The reading program allowed the freedom of self-selection. A student was not scheduled into the reading clinic until he himself saw a need for improvement in the area of reading. This identification on his part was principally accomplished through counseling and diagnostic testing. In working very closely with students on an individual basis, efforts were made to get him to see the need for this type of instruction. When this was accomplished, a student was sent to the reading center where initial screening was dealt with on an individual basis. Diagnostic procedures were used to assess individual problems, and thus an individualized program in reading was prescribed.

The implementation of this program was facilitated through the availability of an abundance of machines, diagnostic instruments, programmed series, and reading materials covering wide ranges of ability and interests. In the initial stages of instruction, experiences were designed for an individual which capitalized on his basic style of learning; that is, kinesthetic, auditory, or visual. An effort was made to put these three styles of learning into combination with one another, so that the student would experience some degree of success with all three. Concerted efforts were made to establish working relationships between each student and his reading teacher.

Many of the students improved in reading skills. It was observed that many of those who did not evidence improved reading skills did improve significantly in their attitudes toward reading. This was considered to be a necessary step toward overall reading improvement.

Based on these experiences, the following recommendations with respect to the reading program are offered:

1. An effort should be made to continually refine teaching and diagnostic procedures in reading. The

success of the individualized approach depends greatly upon the validity of diagnostic procedures. Better diagnostic tools are needed to initially assess specific weaknesses.

2. Continued efforts should be made in involving the total staff in the reading program. The desired goal is that each staff member, in a sense, becomes a teacher of reading. Each teacher should provide language arts experiences related to reading, and should serve as a resource person to the reading program by gathering observational data on students in a variety of situations.
3. A continued effort should be made to refine procedures for individualizing instruction.
4. Continued efforts should be made to refine procedures for evaluating attitudes toward reading. This seems to be particularly important with the underachiever, as the greatest single deterrent to reading improvement seems to stem from an emotional aversion to reading.

Mathematics Program. The mathematics program emphasized the same basic approach to instruction as that followed in reading. Diagnostic procedures were utilized to identify specific deficiencies in mathematics. Individualized programs were structured for each student. Special classes were established for those students who possessed a special interest or ability in mathematics. Therefore, the overall math program served two functions - one of skill development and one of exploring mathematics.

The basic problems encountered by the math department stemmed from a dearth of appropriate diagnostic instruments and from a sparsity of information concerning how to individualize instruction more adequately. Recommendations related to the mathematics program follow:

1. To seek better and more appropriate diagnostic instruments for analyzing skill levels in mathematics.
2. To experiment with and refine procedures for individualizing instruction for students.

The Science Program. The science program revolved around interest areas. Students were asked to make specific plans in their area of interest for experiments which they would like to undertake. Books, laboratory manuals, programmed materials, movies, field trips, and laboratory facilities were made available to the students to stimulate their interest and to assist them in planning ways to investigate their areas of interest. Specific attempts were made in involving the student in doing science rather than learning science. As they went about the business of investigation, constant encouragement was provided. The feeling of success that most students experienced in the science program seemed to be its greatest strength. However, it is recommended that in improving the science program, more structure be given in order to enhance self-direction on the part of many students who were not self-motivating.

The Art Program. The art program stressed the self-expression of ideas, attitudes, emotions, and imagination, the desire to create, and the triumph resulting from the fruition of self-expression. Students were encouraged to experiment with various media in a creative way. Technical and aesthetic instruction was given to individual students when the need presented itself. This need was expression observed by the teacher through the student's verbal expression or overt behavior. Both two-dimensional and three-dimensional areas of art were utilized in the art program, incorporating a variety of media. All types of drawing, painting, printing, ceramics, and sculpture were used. One of the most popular activities with students was working with clay. Metal working as a sculpture medium was also received with much enthusiasm.

The art program was successful in enhancing much creative expression. In addition, the various media used seemed to provide a therapeutic outlet for emotions and hostilities in a productive way. Emphasis was placed on transferring feelings of success developed in art to other learning skills and on art as an effective means of communication. This program was observed to be beneficial in developing self-concepts.

The Industrial Arts Program. Like art, the industrial arts program was one of the most popular electives offered by the school. The industrial arts program was also an individualized one. Students were encouraged to design their own projects and to seek help from the instructor in the implementation of projects. Due to the facility and the basic equipment and materials available, the industrial arts program consisted mainly of woodworking; however, other industrial arts areas were incorporated toward the end of the semester, such as electricity, electronics, drafting, metal working, welding, and crafts. It is recommended that industrial arts be expanded, to provide a more comprehensive program.

Music Program. The music program consisted of several small interest groups. These included guitar classes, practical sessions for rock and roll combos, band rehearsals, piano instruction, and occasional singing, with the autoharp used as harmonic accompaniment. Some classes were used for music appreciation, development of listening skills, and discussion periods. Various types of music including folk ballads, African songs, classical, jazz, rock and roll, and modern, were heard and then discussed in terms of personal impressions and reactions.

Because the music program was not implemented until after the other instructional areas had gotten underway, interest in music was slow in developing. Once students became involved in music, they found the rewards to be great. Many students found music to be very therapeutic, to be an adequate release for tension, and to provide opportunities for dramatic and recreational outlets.

Recommendations for improving the music program follow:

1. More opportunities for vocal music experiences should be provided.
2. Continued emphasis should be placed on active participation in the music program, as opposed to vicarious or passive experiences.
3. More opportunities for individualized instruction should be provided.

The Physical Education Program. All students were required to take physical education. Students were assigned to two physical education instructors, each teaching a different activity. Instructors and activities were changed for each group every three weeks. Although an attempt was made to select activities best suited for the students, those activities ultimately included were determined largely by availability of facilities and equipment. Units were offered in basketball, flag football, gymnastics and tumbling, trampoline, and wrestling.

Physical fitness test results at the beginning of the semester indicated that students were well below national norms. Consequently, a portion of the program was devoted to physical fitness. Cardiovascular endurance and other body strengths were emphasized.

In addition to the instructional program, a comprehensive intramural program was provided. Intramural activities were held every afternoon from 4:00 - 5:45 p.m. An intramural council made up of two representatives from each house was elected at the beginning of the semester and served as the student governing body. Competition was on a team (house) basis, with championships decided in basketball, hockey, relays, softball, table tennis, tug-of-war, volleyball, and wrestling. Points were awarded for standings in each activity, and these points went toward an overall intramural championship.

Due to the fact that most of the boys attending the Advancement School fell below the national norms in physical fitness and because of the fact that many of the boys did not respond to competitive athletics, increased emphasis on providing individual sports and physical education activities should be incorporated.

The Recreation Program. In addition to the physical education and intramural programs, a comprehensive recreation program was provided. Recreational activities included such activities as pool, table tennis, a variety of recreational games, and other related activities. The recreation department supervised instructional, cultural, and recreational field trips. These included trips to the R. J. Reynolds Tobacco Company, to Old Salem, to sports events at the Greensboro Coliseum, swimming at the local YMCA, and outings to various state parks and other recreational facilities of the state easily accessible to the Advancement School.

III. PARENT AND TEACHER VISITATIONS

Visits by counselors to homes of the members of their respective houses began quite late in the term, with the first counselor leaving approximately three weeks before graduation. The idea of home visitations was originated on a trial basis, and met with such approval that the remaining resident counselors were asked to make similar visits. All succeeding visits were made in the month of May, approximately two weeks before the end of school. All six resident counselors made the state-wide visitation and were away from school an average of two days. Two counselors combined their personal free weekend time with weekdays in order to see more parents. A total of 51 homes were visited, with subsequent visits being made to homes within a short radius of school. Time did not permit any of the counselors to visit all of the homes represented in his house, but most parents were later seen on visits to the North Carolina Advancement School on graduation day.

Counselors made the trips in their private vehicles, and counselors' classes and dormitory responsibilities were assumed by various members of the school staff.

The following impressions were gained from these visitations:

1. Great public relations was gained for the North Carolina Advancement School. All homes seemed pleased that the school was interested enough in their son to arrange for the counselor to make the trip. They were eager to talk of their son's progress and discuss the philosophy of the school.
2. All parents were cordial and helpful to the counselors. Not even those parents in the meagerest of surroundings seemed to resent this possible invasion of their privacy.

3. The visits gave insight into the boy's background and a better understanding of their home-related problems. Home visits led to counseling of such problems.
4. Nearly all parents commented on positive changes in their son's attitude since his entering the Advancement School.
5. The presence of a responsible male in many of the homes was lacking. This was primarily due to divorce or separation.

All counselors were in agreement on the following recommendations for future home visitations:

1. Visits should be made at mid-term rather than toward the end of the school year. This would allow better utilization of insight and information gained in future counseling.
2. The student's home school should be included in future visits. This would give the counselor better insight into the boy's academic problems and would also increase public relations between the North Carolina Advancement School and the public schools of the state.
3. Fewer visits should be made on one trip. Visits could possibly be centered on one area of the state

at the time. This would make visits more meaningful for all and would be less fatiguing on the counselors.

4. A checklist or guide should be provided listing pertinent information to be gained from the parents on the visits. This would help standardize post-visitation evaluations.

Meetings for Parents of Non-Resident Students. As an experiment to gain insight into the relationship between pupil behavior in the school setting and parent education, a series of five meetings for parents of one group of non-resident students was set up. These meetings were presided over by the counselor of the non-resident group and were attended by various specialists to further amplify basic concepts and beliefs relative to the operation of the Advancement School. These five meetings revolved around the following topics:

1. Explanation of the philosophical framework for the North Carolina Advancement School and its counseling and instructional programs.
2. The importance of parent-son communication and of the role of honesty, understanding, trust, and acceptance in parent to son relationships.
3. An explanation of the learning center and the exploratory areas of the curriculum.

4. A discussion of the problems associated with reentrance into the home school.
5. A discussion revolving around problems that were perceived by the parents.

Parents were receptive to the opportunities and information made available to them through these meetings. Many of them expressed the feeling that their relationship with their son had changed for the better and attributed this directly to the experiences which these meetings provided.

Secondly, parents seemed to be impressed by the concern exhibited by all staff members toward the well-being and continued improvement of their sons. Although at this point, data does not exist to sufficiently analyze the situation, it has been observed by the counselors and other staff members that the sons of those parents who attended these meetings on a regular basis improved dramatically in their attitude; and, consequently, their achievement in the various academic and skill areas improved. This also holds true for their social and emotional behavior relative to their peers and adults in general.

Although these findings are not substantiated by objective data, these observations have been compiled by highly skilled and trained counselors and teachers who possess much knowledge concerning the nature of social interaction. Therefore, the following recommendations are made with respect to future parent meetings:

1. Provision should be made to continue parent meetings for the day students and to expand the program to include parents of the residential students.
2. A definitive research study should be structured to assess the relationship between parent education and student behavior.
3. Continuing efforts should be made to further refine group techniques to be used with parents. For example, group therapy procedures, sociometric devices, and self-analytic procedures might hold much promise in working with these parents.

Public School Visitations. In order to familiarize the public schools with the Advancement School program, an open house was held by the school in early May. Invited to the Advancement School were principals, guidance counselors, and teachers of students attending the school as well as those who had assisted with the testing of non-participating control students. A total of sixty-five persons representing forty-five schools or school systems throughout the state accepted this invitation.

A program explaining the school's philosophy and the instructional, counseling, and recreational programs was held. Visitors were given a tour of the facilities and had opportunities to observe classes, talk with students, and meet with staff members. A group counseling session was held in the one-way vision room with visitors invited to observe. A panel discussion at the end of the day enabled the visitors to ask questions or make observations about the Advancement School program.

In addition to the above, many other persons visited the Advancement School throughout the semester. These included teachers, counselors, principals, lay people, university professors, and private school personnel. On all these instances, visitors were warmly received.

CHAPTER IV

RESEARCH IN PROGRESS AND NEEDED RESEARCH

The current operation of the Advancement School emphasizes research related to the identification of the underachiever and his characteristics and experimentation into instructional and counseling methods which hold promise for remedying the phenomenon of underachievement. The intent of the research design for the Spring Semester of 1968 was to obtain and analyze gross measures descriptive of this phenomenon.

These gross measures have yielded more definitive problem areas. Some are now in the process of being researched or need to be structured into a research design. There are several research projects in progress in different stages of development. Some of these projects simply require further analyses of the data made available through the testing program during the Spring Semester of 1968. Other research projects were identified by staff members through their experience during the spring of 1968 and substantiated through the literature as being worthy of study. In addition, the results as reported in Chapter Two of this report and observations accrued through experience as reported in Chapter Three point to areas of research needed in the future. This chapter is divided into two parts: (1) Research Now in Progress and (2) Needed Research.

I. RESEARCH IN PROGRESS

Seven research projects are underway at the present time. These projects represent internal analyses of the current program, further analyses of accumulated data, and definitive studies of the effect of particular approaches to instruction as related to changing self-concept of the underachiever.

A Content Analysis of Case Studies. During the 1968 Spring Semester, case studies were compiled on each student at the Advancement School. These case studies yielded behavioral data through observational techniques which are difficult to accumulate in experimental situations and in behavioral research areas. The basic purposes for analyzing these case studies are the following:

1. To categorize behavioral patterns related to the syndrome of underachievement.
2. To relate these behavioral patterns to personality characteristics, self-concept measures, and changes in achievement and aptitude.
3. To provide behavioral information which might be helpful in refining instructional techniques and in designing new learning experiences for the underachiever.

Appropriate statistical models will be used to analyze the data.

An Analysis of Physical Characteristics of the Underachiever. During the first week of the 1968 Summer Session, each student was administered individual tests to provide data on specific physical characteristics of underachievers. A laterality test was administered to assess the presence of mixed dominance and to assess the degree to which it exists in individual students. The Telebinocular was used to determine visual deficiencies, and the audiometer was used to determine the pure tone abilities of students. These data might prove useful in answering the following questions:

1. To what extent are physical deficiencies related to development in the skill areas of reading and mathematics?
2. What relationships exist between physical characteristics of underachievers and measures of aptitude, achievement, personality characteristics, emotional problems, environmental problems, and styles of learning?

The above data were collected on rising sixth and seventh graders. During the 1968 Spring Semester, some physical data were collected on eighth-grade boys. It is desirable to investigate the relationships which exist between data collected on the eighth-grade boys and the physical data collected on the rising sixth and seventh graders.

An Analysis of Motor Skill Abilities of Underachievers. Results, as reported in Chapter Two of this report, indicate that underachievers are characterized by poor motor coordination. The Physical Education Department and the Reading Center are engaged in a cooperative research project to experiment with the improvement of reading skills through the development of specific motor skill abilities. Literature in the area of reading research indicates that motor coordination is directly related to deficiencies in reading skills. Data have been collected on the reading abilities of each student enrolled in the Advancement School during the current Summer Session.

The Physical Education Department has divided its students into two groups: (1) A control group which has been provided a more traditional physical education program; (2) An experimental group which has been provided physical education experiences specifically designed to develop motor skills.

These two groups will be compared on gains in reading skills. It is anticipated that this study will continue during the Fall Semester of 1968.

The Development of Leadership Characteristics in Selected Underachievers. In May of 1968, the staff of the North Carolina Advancement School was asked to rate each student on leadership characteristics. On the basis of this information, fourteen eighth-grade boys were invited to return to the Advancement School for the Summer Session. A special leadership workshop was designed for these boys. This workshop possessed the following characteristics:

1. A humanities block designed to give students opportunities to study and discuss leadership characteristics.
2. Experiences working in a leadership capacity with younger boys.
3. Opportunities to serve as teacher aides to various members of the staff.
4. Opportunities to continue growth in areas of need and interest, emphasizing a single skill area of determined weakness.

These experiences will be analyzed in regard to their effectiveness in enhancing growth in leadership potential. An extensive follow-up study will be implemented to assess the degree to which these boys evidence leadership qualities upon returning to their home school.

An Analysis of the Effectiveness of the 1968 Summer School Program. The effectiveness of the summer school session will be evaluated on the bases of change in achievement, change in aptitude, change in personality characteristics, and change in self-concept. Identifying information has been compiled on the younger boys, and an attempt will be made to identify any correlations which exist between this data and the data compiled on the eighth-grade underachievers during the Spring Semester of 1968.

An Analysis of Change in Student Achievement and Student Self-Concept as Related to An Individualized Approach to Science Instruction. This study is being conducted by the Science Department with students attending the Advancement School during the 1968 Summer Session. The design of the study is structured to gain insight into answers to the following questions:

1. To what extent does an individualized approach to science instruction enhance self-concept?
2. To what extent does an individualized approach to science instruction enhance an improvement in achievement?
3. To what extent, if any, can changes in personality traits, aptitude, achievement, and self-concept be attributed to an individualized approach to science instruction?

Pre-test data were gained on students taking science during the first week of the Summer Session. Post tests will be administered during the last week of the Summer Session. Depending upon results accrued from this project, additional data may be compiled on students entering the Advancement School in the fall of 1968.

An Analysis of the Development of Self-Concept Through an Individualized Approach to Industrial Arts. It has been observed that during the 1968 Spring Semester, the Industrial Arts Program was successful in enhancing self-concept on the part of the students; however, this observation has not been documented by objective data. Using a semantic differential and the Tennessee Self-Concept Scale, growth in self-concept will be analyzed as it relates to Industrial Arts experiences. It is anticipated that this study will continue during the Fall Term of 1968.

II. NEEDED RESEARCH

To further implement the objectives as stated in Chapter One and to gain data relative to the syndrome of underachievement, the following areas need extensive research.

An In-Depth Follow-Up Study of the Boys Who Attended the Advancement School After They Returned to the Home Setting. These follow-up studies should be carried out over a period of several years and should assess achievement, social and emotional adjustment, self-concept, and attitudes toward school and school-related activities. It would be desirable to obtain similar data on the non-participating control groups.

A Depth Study on the Personality Characteristics of Parents. One vital question which has been raised as a direct result of the first semester operation of the Advancement School is, to what extent personality characteristics of parents play in the development of the phenomenon of underachievement. This area needs to be thoroughly researched in order to continue to design learning experiences appropriate for the students. This study could be conducted using random sampling techniques, allowing the study to be done with a relatively small group of parents.

A Depth Study of the Environment of the Student Attending the Advancement School. Emphasis should be placed on assessing the pressures which the home environment places on the youngster and the methods by which the student tends to react to this pressure. Data would be collected through home visitations and through a questionnaire to the home school.

A Study of the Effectiveness of the Counseling Program at the North Carolina Advancement School. This study would include the production of a standardized instrument to assess behavior related to the counseling process. Teaching techniques which incorporate the counseling function should be carefully analyzed as to their effectiveness.

An Analysis of Individualized Instruction and Other Instructional Techniques. Procedures and processes for individualizing instruction should be continually refined and researched. Personality characteristics could be correlated with various instructional methods in an attempt to assess the degree to which specific instructional techniques help students with specific behavior problems.

Comparative Studies Evaluating Differences Among Age Groups. By the end of the Summer Session of 1968, data will be collected on three different age groups: sixth, seventh, and eighth graders. Efforts should be made to compare data among these three groups and to collect data on other age groups. These studies seem particularly appropriate in establishing trends in the development of underachievement and in determining the most effective age to begin treatment.

The Development and Validation of Diagnostic Instruments. As teaching techniques are refined, there will be a continual need for the further development and validation of more sophisticated diagnostic tools in assessing the phenomenon of underachievement. This is particularly true in the area of mathematics and of personality assessments, where concerted efforts should be made to develop appropriate diagnostic instruments.

A Continual and More Thorough Survey of the Literature Related to the Phenomenon of Underachievement. Many programs are developing throughout the country specifically for the underachiever. Efforts need to be made to exchange results with these programs and to continually assess compiled published research in the area of underachievement. This effort would result in less duplication of procedures and techniques in the remedy of underachievement and aid in the development of future programs.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

One of the most persistent and recurring problems in education is related to the identification of factors contributing to the behaviorial syndrome of underachievement, and to the design of educational strategies to overcome this phenomenon. Therefore, the major purpose of the Advancement School was to conduct experimentation and research into the causes and possible remedies of underachievement.

The Director of the Advancement School, the Assistant Director, the Board of Governors, and retained consultants designed a program and a research study intended to discharge this function. This report has been devoted to a description and analyses of the program implemented during the Spring Semester of 1968.

I. SUMMARY

For the purpose of this study, the underachiever was defined as any student with average or above average ability who was not achieving at his expected level. This assessment was made on the basis of standardized test scores, academic record, and teacher observation obtained from the home school.

The program was limited to eighth-grade boys. Priority was given to those students who were achieving at least one or more years below their expected achievement level.

Of all the applications submitted and deemed acceptable by the selection committee, 108 eighth-grade boys representing all areas of the state of North Carolina were randomly selected for admission. Each boy was assigned to a group of eighteen which was headed by a Language Arts/Social Studies Counselor. These eighteen boys lived together in the dormitory and attended many of the same classes during the instructional day. In addition, thirty-six students from the Winston-Salem/Forsyth County school system were admitted as day students. These boys were subjected to the same instructional program but returned to their homes during the evening hours. Thus, the two groups provided an internal control for evaluating the residential aspect of the program. From the initial applicants a third group of students was randomly selected to serve as a control. These students were equally qualified to attend the Advancement School, but were not selected to attend because of available space.

The instructional program consisted of three basic parts:

1. A humanities block of time which emphasized the role of counseling in the teaching process and which designed learning experiences around actual problems of concern to boys.

2. A learning center which incorporated the teaching of reading skills, mathematics skills, and study skills.
3. An exploratory curriculum which incorporated science, music, art, industrial arts, physical education, and exploratory mathematics.

Each student attended a humanities block with the other boys comprising his group or "house." They were scheduled to attend the learning center when the counselor and other faculty members were successful in getting the boys to realize their need for reading or mathematics instruction. Each student was allowed to elect three subjects from the exploratory curriculum. An extensive intramural program and recreational activities were provided.

Case studies were compiled on each student attending the Advancement School which included an analysis of academic achievement, social and emotional adjustment, attitudinal changes, and behavioral problems evidenced at the school. Each case study included specific recommendations as to what should be done with the student when he returned to his home setting.

Design of the Study. The research design for the initial stages of the operation of the North Carolina Advancement School concerned itself with three basic approaches:

1. The systematic collection of data relative to the phenomenon of underachievement.

2. The systematic collection of data to provide a comparison between the program offered by the North Carolina Advancement School with the regular program received by similar students in the public schools of North Carolina.
3. The collection of data to establish a profile of descriptive characteristics of boys labeled as underachievers.

Three groups of students with similar characteristics were used. Eligible students who applied for the program were assigned to one of three groups: the Advancement School Residential Group, the Advancement School Day Group, and the Non-Participating Control Group. All selections were accomplished using random sampling techniques.

All three groups were assessed on achievement, aptitude, and study methods using a pre-test, post-test design. Pre-test data were collected during the first two weeks in January, 1968, and post-test data were collected during the last two weeks of May, 1968. These data were analyzed by an analysis of covariance.

Additional data were collected on the Advancement School Residential Students and the Advancement School Day Students. Measures of self-concept, personality characteristics, and measures of responsibility for learning were compiled.

Statistical techniques used in analyzing these data were an analyses of covariance, multiple correlations, correlated _t_ test, and comparison of means.

Complete data were collected on 101 residential students, 34 day students, and 67 non-participating control students. These data have been sent to the home school of each student.

II. CONCLUSIONS

The following conclusions were derived from the analyses of the data collected:

A Comparison of the Three Groups of Students On Achievement and Aptitude.

1. The residential group and the control group performed better on language achievement than did the day group. There were no significant differences on language achievement between the residential and control groups.
2. The residential group did significantly better on change in verbal intelligence than either the control group or the day group.
3. Both the residential and control group performed better on study methods than did the day group. No differences existed between residential and control groups.

An Analysis of Change In Self-Concept of the Residential Students.

4. Residential students saw themselves less favorably at play at the end of the experience at the Advancement School than they did at the beginning. In addition, they had a tendency to evaluate teachers in general less favorably; and they seemed to value rules less at the end of the term.

5. The residential students saw themselves as being more responsible for their own achievement regardless of whether or not this resulted in success or failure at the end of the program than they did at the beginning.

Correlations Between Achievement Measures and Other Variables for Students Attending the Advancement School.

6. Achievement in paragraph meaning was found to be highly correlated with flexibility as measured by the California Psychological Inventory. It was also highly correlated with the region of the state in which the student resided and with intellectual achievement responsibility. In summary, those students who scored high on the paragraph meaning test tended to be insightful, informal, adventurous, humorous, rebellious, idealistic, assertive, and egotistic. Students with low scores on paragraph

meaning tended to be deliberate, worrying, industrious, guarded, mannerly, methodological, and rigid. Low scores also indicated deference to authority, custom, and tradition. Students with high scores tended to accept responsibility for their own failures.

7. Language achievement was highly correlated with communality and femininity as measured by the California Psychological Inventory and Intellectual Achievement Responsibility. This infers that those students who scored high on language achievement tended to be moderate, tactful, reliable, sincere, patient, steady, and realistic. Students with low scores on language achievement were impatient, changeable, complicated, nervous, restless, and confused. Students with low scores tended to be inattentive and forgetful, as well as possessing internal conflicts. Students with high scores on language achievement tended to be appreciative, patient, helpful, gentle, moderate, persevering, and sincere while accepting and respecting others. Students with low scores were ambitious, hard-headed, physically active, robust, and restless, and were manipulative and opportunistic in dealing with others. High scorers tended to accept responsibility for their own success much more than low scorers.

8. Arithmetic computation was highly correlated with socialization and sociability as measured by the California Psychological Inventory. This indicates that students who scored high on arithmetic computation tended to be confident, enterprising, ingenious, outgoing, competitive, original, and fluent in thought. Low scorers tended to be awkward, conventional, quiet, submissive, detached, and passive in attitude. Low scorers tended to be overly influenced by others' reactions and opinions. In addition, high scorers tended to be honest, industrious, obliging, sincere, modest, steady, conscientious, responsible, and conforming. Low scorers were defensive, demanding, opinionated, resentful, headstrong, rebellious, and undependable.
9. Arithmetic applications was highly correlated with socialization and psychological mindedness as measured by the California Psychological Inventory. It was also highly correlated with As I See Myself at School. High scorers on arithmetic applications tended to see themselves more favorably at school than low scorers. High scorers appeared to be socially mature and to see themselves as being outgoing, spontaneous, quick, resourceful, changeable, and verbally fluent. In addition,

high scorers tended to be rebellious toward rules and restrictions. Low scorers, on the other hand, tended to be apathetic, serious, unassuming, slow and deliberate, overly conforming, and conventional.

It should be noted that Advancement School students, as a group, tended to score low on all achievement measures. Therefore, the description of personality characteristics for low scorers are very descriptive of the group as a whole. In addition, ability measures were prime predictors for most of the achievement measures.

Correlations Between Study Methods and Other Variables.

10. Advancement School students scored considerably below national norms on study methods. An analysis of the correlations between study methods and personality attributes revealed that individuals scoring low on the study methods scale tended to possess personality attributes characterized as inhibited, shy, passive, defensive, impulsive, insecure, and disorganized.
11. Study methods were highly correlated with views of the self. Students scoring high on study methods tended to view themselves as feeling responsible for academic achievement, regardless of whether it is a success or failure. They tended to see themselves in a positive light in school and to possess a positive attitude of

what they would like to be. Low scorers on the study methods tended to be very anxious in all these characteristics. Generally, a favorable concept of self at school was combined with low anxiety and with feeling personally responsible for academic accomplishments.

12. Study methods were highly correlated with social background variables. These correlations revealed that Negro students possessed better study skills than white students, that students from lower income families had better skills than students from higher income families, and that students from larger cities had better study skills than those from smaller cities and towns.

Correlations Between Aptitude and Other Variables.

13. Verbal intelligence was highly correlated with personality factors as measured by the California Psychological Inventory. Verbal intelligence was correlated with social presence, sense of well-being, tolerance, communality, intellectual efficiency, and femininity. High scorers on verbal intelligence tended to be poised, spontaneous, and self-confident in personal and social interaction. They also tended to be accepting and non-judgmental in their attitudes toward social beliefs and other people. High scorers tended to be moderate, tactful, reliable, sincere, and realistic. They also

tended to be efficient, clear-thinking, and resourceful. High scorers possessed masculine interests and were somewhat hardheaded, ambitious, active, robust, and restless. Low scorers on intelligence measures tended to have the opposite characteristics.

14. Non-Verbal Intelligence was highly correlated with self-acceptance and good impression as measured by the California Psychological Inventory. High scorers on non-verbal intelligence tended to possess a sense of personal worth and a capacity for independent thinking and action. High scorers also tended to possess the capacity for creating a favorable impression and seemed to be concerned about how others reacted to them. Low scorers tended to possess the opposites of these characteristics.

15. Both verbal and non-verbal intelligence correlated highly with views of the self as measured by a semantic differential. The individual who scored high on intelligence tests tended to see himself less favorably at home than those who scored lower on intelligence tests.

16. Verbal intelligence scores were significantly correlated with race, education of father, and income of father. Those who scored high on intelligence had

fathers who attained higher levels of education and whose income was higher than the fathers of those students who scored low. White students tended to score higher than Negroes. Correlations between non-verbal intelligence and social background variables followed somewhat the same pattern. Verbal intelligence was significantly correlated with region of the state, but not with race. High scorers on non-verbal intelligence tended to come from more populous areas of the state, and their fathers tended to have better income than those scoring low on verbal intelligence.

A Profile of the North Carolina Advancement School Students.

17. Students at the Advancement School scored low on study methods. On each of the sub-tests, students scored approximately two standard deviations below the mean of the national norm.
18. An analysis of personality characteristics as measured by the California Psychological Inventory revealed that on most personality traits the Advancement School students scored at least one standard deviation below national norms. One personality trait stands out in particular. A sense of well-being was three standard deviations below the norm. This indicates that the students at the Advancement

School tended to be unambitious, leisurely, cautious, apathetic, and conventional. In addition, they were self-defensive, apologetic, and constricted in thought and action.

19. The students at the North Carolina Advancement School tended to see themselves more favorably the more removed from school and school-related activities they became. In addition, they saw themselves more favorably in hypothetical situations than in real situations. They tended to feel they were more responsible for their own successes and failures than were outside forces.

In summary, the results of this study tend to indicate that personality characteristics are highly correlated with achievement. Particularly, the underachiever as defined by this group tends to lack a sense of well-being, tends to be apathetic, uncomfortable in social situations, impulsive in behavior, confused, and lacking in positive self-concept. In addition, he tends to exhibit an inability to carry through solutions to problems while, at the same time, he evidences an ability to arrive at rather creative solutions to problems.

III. RECOMMENDATIONS

The following recommendations are made with respect to this study:

1. Further research should be conducted in analyzing specific instructional and counseling approaches in enhancing self-concept. A non-directive approach to counseling and teaching seems to be particularly appropriate in enhancing a more positive view of self and developing a more positive sense of well-being. Therefore, it is recommended that present counseling procedures be continued and refined.
2. Further data is needed to assess the degree to which family relationships and environmental conditions affect the underachiever's self-concept.
3. Continuing efforts should be made to provide learning experiences designed to improve the underachiever's methods of study.
4. Continued efforts should be made for identifying and designing diagnostic instruments for assessing individual strengths and weaknesses of students.
5. Careful follow-up studies should be conducted over a long-range period to assess the carry-over values which the experiences at the Advancement School might have for students. Correlations should be compiled relating these factors to family and environmental factors.

6. Efforts should be made to expand group and individual meetings with parents. Initial experiences with parents indicate that work with parents is accompanied by positive growth in the sons of these parents, both in attitudinal changes and in achievement.
7. Continued efforts should be made to improve dormitory conditions for students. It has been observed that pleasant living surroundings are accompanied by the development of respect for the rights and privileges of others.
8. Further data is needed to compare the residential program with the day program. Results of this study indicate that residential students gained more from the experience than did the day students. Further research is needed to determine reasons for this result and to aid in designing a more effective day program.

FOOTNOTES

1. T. C. Kelley, R. Madden, E. F. Gardner, and H. C. Rudman, Stanford Achievement Test: Advanced Battery, New York: Harcourt, Brace, and World, Inc., 1964.

2. I. Lorge and R. L. Thorndike, The Lorge-Thorndike Intelligence Tests, Boston: Houghton Mifflin Co., 1957.

3. H. D. Carter, California Study Methods Survey, Los Angeles: California Test Bureau, 1958

4. See B. J. Winer, Statistical Principles in Experimental Design, New York: McGraw-Hill, 1962.

5. See C. Osgood, G. Luci, and P. Tannenbaum, The Measurement of Meaning, Urbana, Ill.: University of Illinois Press, 1957, for the original idea behind this scaling technique. Item selection was also based on some unpublished work by Katherine Ray and K. White in the School of Education at the University of North Carolina at Chapel Hill.

6. See V. J. Crandall, W. Katkovsky, and Ann Preston, "Motivational and Ability Determinants of Young Children's Intellectual Achievement Behaviors," Child Development, 1962, 33, 643-661.

7. See the summary by M. Kornrich, Underachievement, Springfield, Illinois: C. C. Thomas, 1965.

8. For scale descriptions, see the Personality Scale Descriptions in the Appendix.

9. N. Levy, "A Short Form of the Children's Manifest Anxiety Scale," Child Development, 1958, 29, 153-154.

BIBLIOGRAPHY

Carter, H. D. California Study Methods Survey. Los Angeles: California Test Bureau, 1958.

Crandall, V. J., W. Katkovsky and S. Preston. "Motivational and Ability Determinants of Young Children's Intellectual Achievement Behaviors," Child Development, 33:643-661, 1962.

Kelley, T. C., R. Madden, E. F. Gardner, and H. C. Rudman. Stanford Achievement Battery. New York: Harcourt, Brace, and World, Inc., 1964.

Kornrich, Milton (ed.). Underachievement. Springfield, Ill.: C. C. Thomas, 1965.

Levy, N. "A Short Form of the Children's Manifest Anxiety Scale." Child Development, 29:153-154, 1958.

Lorge, I. and R. L. Thorndike. The Lorge-Thorndike Intelligence Tests. Boston: Houghton Mifflin Co., 1957.

Osgood, G. Luci and P. Tannenbaum. The Measurement of Meaning. Urbana, Ill.: University of Illinois Press, 1957.

Winer, B. J. Statistical Principles in Experimental Design. New York: McGraw-Hill, 1962.

APPENDIX

TABLE 6 SCALE DESCRIPTIONS OF THE CALIFORNIA PSYCHOLOGICAL INVENTORY[a]

CLASS I. MEASURES OF POISE, ASCENDENCY, AND SELF-ASSURANCE

1. Dominance Do	To assess factors of leadership ability, dominance, persistence, and social initiative. HIGH SCORERS: aggressive, confident, outgoing, planful, having initiative; verbally fluent, self-reliant. LOW SCORERS: retiring, inhibited, commonplace, indifferent, silent, slow in thought and action; avoiding situations of tension and decision; lacking in self-confidence.
2. Capacity for status Cs	To serve as an index of an individual's capacity for status (not his actual or achieved status). The scale attempts to measure the personality qualities and attributes which underlie and lead to status. HIGH SCORERS: active, ambitious, forceful, insightful, resourceful, and versatile; ascendant and self-seeking; effective in communication; having personal scope and breadth of interests. LOW SCORERS: apathetic, shy, conventional, dull, simple, and slow; stereotyped in thinking; restricted in outlook and interests; uneasy and awkward in new or unfamiliar social situations.

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[a] _California Psychological Inventory_, "Scale Descriptions," Consulting Psychologists Press, Inc., Palo Alto, California

Table 6 (continued)

3. Sociability Sy	To identify persons of outgoing, sociable, participative temperament. HIGH SCORERS: confident, enterprising, ingenious, and outgoing; competitive and forward; original and fluent in thought. LOW SCORERS: awkward, conventional, quiet, submissive; detached and passive in attitude; suggestible and overly influenced by others' reactions and opinions.
4. Social presence Sp	To assess factors such as poise, spontaneity, and self-confidence in personal and social interaction. HIGH SCORERS: clever, enthusiastic, imaginative, quick, informal, spontaneous, active, and vigorous; having an expressive, ebullient nature. LOW SCORERS: deliberate, moderate, patient, self-restrained, and simple; vaccillating and uncertain in decision; literal and unoriginal in thinking and judging.
5. Self-acceptance Sa	To assess factors such as sense of personal worth, self-acceptance, and capacity for independent thinking and action. HIGH SCORERS: intelligent, outspoken, cool, versatile, witty, aggressive, and self-centered; possessing self-confidence and self-assurance. LOW SCORERS: methodical, conservative, dependable, conventional, easy-going, and quiet; self-abasing and given to feelings of guilt and self-blame; passive in action and narrow in interests.
6. Sense of well-being Wb	To identify persons who minimize their worries and complaints, and who are relatively free from self-doubt and disillusionment. HIGH SCORERS: ambitious, alert, and versatile; productive and active; valuing work and effort for its

Table 6 (continued)

	own sake. LOW SCORERS: unambitious, leisurely, cautious, apathetic, and conventional; self-defensive and apologetic; constricted in thought and action.
CLASS II. MEASURES OF SOCIALIZATION, MATURITY, AND RESPONSIBILITY	
7. Responsibility Re	To identify persons of conscientious, responsible, and dependable disposition and temperament. HIGH SCORERS: responsible, thorough, progressive, capable, dignified, and independent; conscientious and dependable; alert to ethical and moral issues. LOW SCORERS: awkward, changeable, immature, moody, lazy, and disbelieving; influenced by personal bias, spite, and dogmatism; uncontrolled and impulsive in behavior.
8. Socialization So	To indicate the degree of social maturity, probity, and rectitude which the individual has attained. HIGH SCORERS: honest, industrious, obliging, sincere, modest, steady, conscientious, and responsible; self-denying and conforming. LOW SCORERS: defensive, demanding, opinionated, resentful, headstrong, rebellious, and undependable; guileful and deceitful; given to excess, ostentation, and exhibition in behavior.
9. Self-control Sc	To assess the degree and adequacy of self-regulation and self-control and freedom from impulsivity and self-centeredness. HIGH SCORERS: calm, patient, practical, self-approving, thoughtful and deliberate; strict and thorough in their own work and in their

Table 6 (continued)

	expectations for others; honest and conscientious. LOW SCORERS: impulsive, shrewd, excitable, irritable, self-centered, and uninhibited; aggressive and assertive; overemphasizing personal pleasure and self-gain.
10. Tolerance To	To identify persons with permissive, accepting and nonjudgmental social beliefs and attitudes. HIGH SCORERS: enterprising, informal, quick, tolerant, clear-thinking, resourceful; intellectually able; having broad and varied interests. LOW SCORERS: inhibited, aloof, wary and retiring;passive and overly judgmental in attitude; disbelieving and distrustful in personal and social outlook.
11. Good impression Gi	To identify persons capable of creating a favorable impression, and who are concerned about how others react to them. HIGH SCORERS: cooperative, enterprising, outgoing, warm and helpful; diligent and persistent. LOW SCORERS: inhibited, shrewd, wary, and resentful; cool and distant in their relationships; self-centered and too little concerned with the needs and wants of others.
12. Communality Cm	To indicate the degree to which an individual's reactions and responses correspond to the model ("common") pattern established for the inventory. HIGH SCORERS: moderate, tactful, reliable, sincere, patient, steady, and realistic; honest and conscientious; having common sense and good judgment. LOW SCORERS: impatient, changeable, complicated, nervous,

Table 6 (continued)

	restless, and confused; guileful and deceitful; inattentive and forgetful; having internal conflicts.
CLASS III. MEASURES OF ACHIEVEMENT POTENTIAL AND INTELLECTUAL EFFICIENCY	
13. Achievement via conformance Ac	To identify those factors of interest and motivation which facilitate achievement in any setting where conformance is a positive behavior. HIGH SCORERS: capable, cooperative, organized, responsible, stable, and sincere; persistent and industrious; valuing intellectual activity and achievement. LOW SCORERS: coarse, stubborn, awkward, insecure, and opinionated; easily disorganized under stress or pressures to conform; pessimistic about their occupational futures.
14. Achievement via independence Ai	To identify those factors of interest and motivation which facilitate achievement in any setting where autonomy and independence are positive behaviors. HIGH SCORERS: mature, forceful, dominant, demanding, and foresighted; independent and self-reliant; having superior intellectual ability and judgment. LOW SCORERS: inhibited, anxious, cautious, dissatisfied, dull; submissive and compliant before authority; lacking in self-insight and self-understanding.
15. Intellectual efficiency Ie	To indicate the degree of personal and intellectual efficiency which the individual has attained. HIGH SCORERS: efficient, clear-thinking, intelligent, progressive, thorough, and resourceful; alert and

Table 6 (continued)

	well-informed; placing a high value on intellectual matters. LOW SCORERS: confused, cautious, easy-going, defensive, shallow, and unambitious; conventional and stereotyped in thinking; lacking in self-direction and self-discipline.
CLASS IV. MEASURES OF INTELLECTUAL AND INTEREST MODES	
16. Psychological-mindedness Py	To measure the degree to which the individual is interested in, and responsive to, the inner needs, motives, and experiences of others. HIGH SCORERS: outgoing, spontaneous, quick, resourceful, changeable; verbally fluent and socially ascendant; rebellious toward rules, restrictions, and constraints. LOW SCORERS: apathetic, serious, and unassuming; slow and deliberate in tempo; overly conforming and conventional.
17. Flexibility Fx	To indicate the degree of flexibility and adaptability of a person's thinking and social behavior. HIGH SCORERS: insightful, informal, adventurous, humorous, rebellious, idealistic, assertive, and egotistic; sarcastic and cynical; concerned with personal pleasure and diversion. LOW SCORERS: deliberate, worrying, industrious, guarded, mannerly, methodical, and rigid; formal and pedantic in thought; deferential to authority, custom, and tradition.
18. Femininity Fe	To assess the masculinity or femininity of interests. (High scores indicate more feminine interests, low scores more masculine.) HIGH SCORERS: appreciative, patient, helpful, gentle,

Table 6 (continued)

moderate, persevering, and sincere; respectful and accepting of others; behaving in a conscientious and sympathetic way. LOW SCORERS: hard-headed, ambitious, masculine, active, robust, and restless; manipulative and opportunistic in dealing with others; blunt and direct in thinking and action; impatient with delay, indecision, and reflection.

TABLE 7

TESTS USED AT THE NORTH CAROLINA ADVANCEMENT SCHOOL

SPRING 1968

Lorge-Thorndike Intelligence Tests - Verbal and Non-Verbal Batteries, (Forms A and B).

Stanford Achievement Test: Paragraph Meaning, Language, Arithmetic Computation and Arithmetic Application, (Forms W and X).

California Study Methods Survey, (Grades 7-13)

Stanford Diagnostic Reading Test, (Form W)

Stanford Diagnostic Arithmetic Test, (Form W)

California Psychological Inventory

Intellectual Achievement Responsibility (IAR)

Semantic Differential

Anxiety Scale

Memory-for-Designs Test